Do You Know the Facts?

—about your competition?

The new edition of the Refrigeration Directory and Market Data Book gives detailed specifications for 354 models of household electric refrigerators made by 48 different companies.

—about monthly fluctuations in the volume of sales?

Complete statistics for each month of this year showing sales and stocks of household and commercial equipment of the group of companies representing 80 per cent of the industry's total business are tabulated in the October Supplement which is bound in with the new paper-back, one-dollar edition of the Directory.

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The six recognized functions of complete air conditioning are outlined, the present status of the business is stated in definite terms and a complete list of the manufacturers of the various types of equipment will be found in the new book now on sale.

—about new trends in methods of distribution?

A clear explanation of the important changes in the sales policies of leading manufacturers is given in the 120-page Supplement which has been added to the 1932 Refrigeration Directory and Market Data Book.

—about the growing importance of companion merchandise?

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—about the extent of the market in your town?

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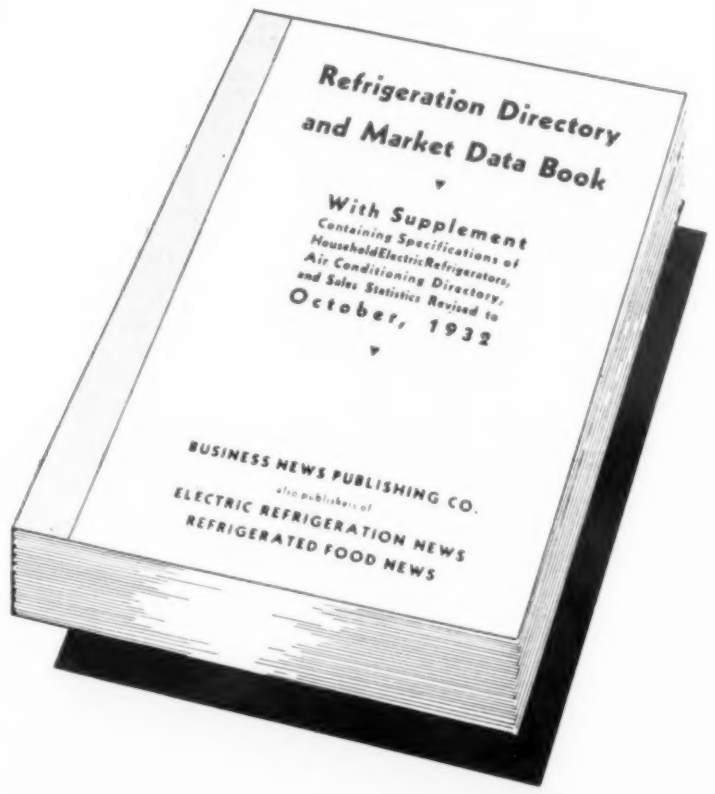

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Merchandising Section

IN TWO PARTS PART ONE

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

VOL. 7, NO. 13, SERIAL NO. 193
ISSUED EVERY WEEK

Copyright, 1932, by Business News Pub. Co.

DETROIT, MICHIGAN, NOVEMBER 30, 1932

Entered as second-class matter Aug. 1, 1927, at Detroit, Mich.

THREE DOLLARS PER YEAR
TEN CENTS PER COPY

NET EARNINGS OF $102,701 SHOWN BY KELVINATOR

Cash Position Improved; Funded Debt Smaller

DETROIT—Net earnings of $102,701.15 or $0.09 per share were reported by the Kelvinator Corp. (including its subsidiary, the Leonard Refrigerator Co.) for the fiscal year which ended Sept. 30, 1932. This figure includes dividends received from the Refrigeration Discount Corp. and is after all charges including federal taxes.

This statement compares with net earnings of $1,761,709.19 or $1.53 per share, for the previous fiscal year.

Cash position was materially improved, with cash on hand amounting to $3,121,111.99 as compared to $3,051,-988.82 in the previous year. The remaining funded indebtedness in the form of Electric Refrigeration Building Corp. bonds amounted to $928,000 as compared to $1,073,000 on Sept. 30, 1931, a reduction of $145,000 during the current fiscal year.

Inventories were again reduced, thereby establishing a figure lower than last year's total, which was the lowest up to that time. Ratio of current assets to current liabilities was 9.64 to 1, as compared to 8.1 to 1 at the end of September, 1931. Working capital was $6,451,-887.13 compared to $6,107,468.15 last year. Book value is $13.52 per share.

"Price reductions which came last March found us with the normally large inventory required for spring demand," said George W. Mason, president and chairman of the board, in commenting on the report. "It was necessary to clear

(Concluded on Page 2, Column 5)

MAJESTIC APPOINTS 3 ASSISTANT OFFICERS

CHICAGO—Three assistant vice presidents who will head autonomous departments have been named in a new executive set-up recently created by the Grigsby-Grunow Co.

John F. Ditzell has been named assistant vice president in complete charge of the refrigeration division.

W. G. Pierce is now assistant vice president in charge of the radio division.

R. C. Rolfing is assistant vice president in charge of production.

Don M. Compton retains his position as vice president and general manager of the Grigsby-Grunow Co.

Grigsby-Grunow Co. will hold its annual convention Dec. 15-19 at French Lick, Ind., company officials have announced.

The 1933 lines of Majestic refrigerators and radios will be shown at the convention.

Nema Sales & Stocks For October

Nema sales and stocks for October, 1932, as reported by member companies of the National Electrical Manufacturers Association are given in full on page 12.

G. E. PROMOTION MEN TO HEAR 1933 PLANS

CLEVELAND—A two-day institute of the General Electric refrigeration department will be held here Thursday and Friday of this week, Dec. 1 and 2, for sales promotion managers from all General Electric refrigerator distributorships in the United States, according to P. B. Zimmerman, manager of the refrigeration department.

The meeting will be directed by Walter J. Daily, manager of the sales promotion division of the department and will feature such authorities on advertising, radio, and sales promotion as Lou Maxon, Detroit, president of Maxon, Inc.; Bruce Barton, New York City, chairman of the board of directors of Batten, Barton, Durstine & Osborn; Heywood Broun, master of ceremonies for the General Electric Circle program and noted columnist.

Other distinguished speakers will be Arthur B. Reeve, author of detective novels. P. B. Zimmerman, manager of the General Electric refrigeration department; M. F. Mahony, manager of the merchandising division; A. M. Sweeney, manager of the production and distribution division.

W. A. Grove, Chicago, advertising manager for the Edison General Electric Appliance Co., Inc.; Frances Weedman, Chicago, director of home economics for the Edison General Electric Co.; Edwina Nolan, home economics director for the refrigeration department.

The conference will be opened by Mr. Zimmerman with a talk on "Getting the Most for Your Advertising Dollar." He will be followed by Daily who will speak on "The Public Slant." Sweeney's subject will be "The Manufacturing Phase of Quality"; and Mahony will talk on

(Concluded on Page 2, Column 4)

ALTER CO. TAKEN OVER AS MAJESTIC FACTORY BRANCH

CHICAGO—The Harry Alter Co., Chicago and northern Illinois distributor for Majestic refrigerators, has been taken over by the Grigsby-Grunow Co., which has created the "Northern Division of Grigsby-Grunow Co.," which will conduct a direct factory selling operation.

Harry and Arthur Alter will manage this new "Northern Division" operation. Showroom space has been leased in the Pure Oil building on E. Wacker Drive, but all accounting and other office busi-

(Concluded on Page 12, Column 5)

UNIVERSAL CORP. EARNS 42 CENTS ON EACH SHARE

Sales Increase Reported For Fiscal Year By Johnston

DETROIT—Earnings equivalent to $0.42 per share on all outstanding Class "A" stock were reported by G. M. Johnston, president of the Universal Cooler Corp., in the annual stockholders' meeting, Nov. 23.

Mr. Johnston reported an increase in sales over the previous fiscal year. He also expressed optimism concerning the coming year, stating that the Universal Cooler Corp. commercial line of refrigerating units had been increased to include larger size condensing units, allowing the company to enter a field that had previously been dominated by the ammonia type of refrigeration plant.

The following directors were elected at the meeting: Ford Ballantyne, John B. Ford, Jr., E. B. Henry, Charles H. Hodges, Jr., John Huetteman, G. M. Johnston, E. C. Lewis, James L. Nelson, and A. H. Sarver.

At a subsequent meeting of the directors, the following officers were elected to hold office during the coming year: G. M. Johnston, president; Ford Ballantyne, vice president; F. J. Gleason, secretary; C. E. Costain, treasurer; Edna M. Blaurock, assistant secretary; John H. Nugent, assistant treasurer.

BONFIG NAMED SALES MANAGER BY GRUNOW

CHICAGO—Henry C. Bonfig of Kansas City, Mo., has been appointed sales manager of the Grunow Corp., announces William C. Grunow, president of the corporation.

In making the announcement of Bonfig's appointment, Mr. Grunow states: "Duane Wanamaker was advertising director of my company for five years, and in my new organization, at my request, added to his duties the management of the sales department.

"Mr. Wanamaker has done up an excellent job of lining up distributors for our product, but it has become increasingly apparent that he could not handle both the sales and the advertising departments. Therefore it has become necessary to secure someone else to take over the sales management."

For the past five years Mr. Bonfig has been an executive of the Sterling Radio Co. (Majestic distributor) of Kansas City.

DISTRIBUTORS MEET

CHICAGO, Nov. 29.—The first distributors convention of the Grunow Corp., manufacturer of electric refrigerators, was scheduled to open at the Lake Shore Athletic club here today, and to continue through Thursday.

The new Grunow refrigerators will be shown to distributors and prospective distributors during the course of the convention. A closed business session was scheduled for the opening day. A banquet on Thursday night will close the convention.

Dr. Allison Meets With Seaboard Bureaus

NEW YORK CITY—Heading South from New York City for a series of electric refrigeration meetings along the Atlantic seaboard, Dr. G. W. Allison, field manager of the Electric Refrigeration Bureau, is now fulfilling a schedule which will keep him busy until Dec. 10, according to G. N. Brown, refrigeration manager of the bureau.

On Monday of this week Dr. Allison

(Concluded on Page 2, Column 5)

Palmer Named Trupar Representative

DAYTON—E. S. Palmer, who has been identified with the radio-music industry for the past 20 years, is now eastern representative for the Trupar Mfg. Co., manufacturer of Mayflower refrigerators.

Retires

COL. FRANK E. SMITH
Will retire Dec. 1 as president of Servel, Inc., and subsidiaries.

$201,896 TAX PAID BY REFRIGERATOR FIRMS

WASHINGTON, D. C.—The Federal Revenue tax on mechanical refrigerators for the month of October amounted to $201,896.25, while the tax on radios and phonograph records totalled $218,722.70, according to figures recently made public by the Bureau of Internal Revenue.

Collections under the new tax rates are increasing from month to month, according to the bureau. Expenditures, not dwindling receipts, are causing the federal government's deficit, which passed the $700,000,000 mark on Nov. 15, according to oral and statistical information made available at the Treasury Department.

Receipts have added to the deficit by failing to come up to expectations, but their failure to meet estimates is not so serious as the failure of expenditures to decline, it is said.

Aggregate expenditures through Nov. 15 were $1,395,726,060, receipts were $693,014,474, and the resultant deficit was approximately $702,711,600. On the corresponding date in the previous fiscal year expenditures were $1,608,087,275, receipts $810,718,473, and the deficit $797,-368,802.

Increases in the new taxes have been offset by sharp declines in income tax payments which have brought the total internal revenue collections thus far in the fiscal year down to $447,957,960 compared with $527,600,360 in the same period of the previous year.

Of the new taxes the Federal tax of one cent a gallon on gasoline has been the largest producer. It yielded $14,-734,372 in October. The two-cent bank check tax was second for the month with $3,538,415, and the 3 per cent electrical energy tax was third with $2,-413,314.

SMITH RETIRES FROM PRESIDENCY OF SERVEL, INC.

Executive Will Retain Position On Board Of Directors

NEW YORK CITY, Nov. 29.—Col. Frank E. Smith, president of Servel, Inc., and subsidiary companies, will retire from that position, Thursday, Dec. 1. He will, however, retain his considerable stock interest and continue as a director in all of the companies, and will also act as a special consultant to the management.

Within a few weeks, Col. Smith will open an office in New York City, and will resume the practice of engineering and financial consultant which he left in 1927 to reorganize and rehabilitate Servel.

It was in the fall of 1927 that Col. Smith was called upon to act as receiver in various states for all Servel companies. From Aug. 4 to Dec. 30 of that year he was engaged in the task of reorganizing Servel.

He was elected president, director, and member of the executive committees of the newly formed Servel, Inc., Jan. 1, 1928.

Col. Smith had had considerable experience in the rehabilitation of tottering concerns before he became associated with Servel. In 1912 he was named receiver and general manager for the United States Motors Co. when it went into bankruptcy.

At that time he had just completed what was perhaps the biggest job he had ever undertaken, the building, equipping, manning, and operating of the Maxwell-Briscoe Motor Co. at New

(Concluded on Page 2, Column 4)

G. E., WESTINGHOUSE TO SELL RADIO STOCK

WASHINGTON, D. C.—General Electric Co. and Westinghouse Electric & Mfg. Co. have been ordered to dispose of half their holding of Radio Corp. common stock immediately, and the remainder within three years, in the decision of the court in the government's anti-trust suit against the Radio Corp. of America.

In addition it was ruled that the two electric companies may not buy radio stock again or have their directors sitting on the Radio Corp. board, that they shall cease cross-licensing their patents to the detriment of third parties, and that they shall modify or change their foreign contracts within two-and-a-half years or test their legality in court at the end of that time.

Prior to entering the decree, which ended "one of the largest anti-trust

(Concluded on Page 2, Column 5)

Leonard Opens Series of Field Meetings With Distributors

DETROIT, Nov. 29.—A series of 15 wholesale field schools, arranged to give distributors a thorough grounding in policies and plans which will enable them to obtain and train the right kind of dealers, was launched here yesterday and today by the Leonard Refrigerator Co. of this city and Grand Rapids, Mich. Representatives of five distributorships in this region were present at the sessions of which were held in the Statler hotel. Concerns represented were Buhl Sons Co., Detroit; B. W. Inc., Cleveland; the Columbus Co., Columbus, Ohio; Leonard Grand Rapids, Mich.; and General Distributing Co., Saginaw, Mich.

Clicking off in rapid succession, the schools will be held at 14 strategic points outside of Detroit over a period of six weeks. They will reach more than 200 representatives of 50-odd distributing organizations.

Except for the schools in the far West, J. I. Petrie, sales manager of the company with the assistance of A. M. Taylor, director of merchandising, will conduct the sessions. District Managers J. Nicolson and H. E. Brasier will be in charge of the West Coast and Southwestern meetings. At each school will be a representative of Refrigeration Discount Corp., the local district manager, and a member of the sales promotion department.

The program for these meetings will include a complete outline of the organization of a distributorship, wholesale selling policies and plans, dealer-getting activities, advertising and sales promotion media and methods, dealer and salesman training, the plans offered by ReDisCo, and an intensive presentation of the features of the Leonard line.

Leonard executives have prepared a map for each distributor's territory, on which is marked the areas or cities in which the distributor should have a dealer. The problems of the wholesale salesman's territory, his quota, and the preparation necessary for securing new dealers are to be discussed.

Considerable material will also be presented on the qualifications of a good dealer, and the manner in which these qualifications can be determined.

A series of 51 slides showing the progress of the Leonard Refrigerator Co. since 1881 and illustrating the features of the 1933 line will form the second "period" of the school.

Advertising and sales promotion activity will be taken up in the "third" period of these sessions. Slides have

(Concluded on Page 2, Column 3)

General Electric Increases Sales Budget, Zimmerman States

CLEVELAND—The General Electric Co. as a whole and the electric refrigeration department in particular, is increasing its sales budget for 1933 because of an expected increase in business in the specialty field, stated P. B. Zimmerman, manager of the refrigeration department in an address to the annual conference of distributors' wholesale managers recently held here.

"The acid test of your contribution," Mr. Zimmerman told the wholesale men, "was this season. Had the General Electric Co. an interest in retrenchment in this appliance business the refrigeration division would not have been continued."

Mr. Zimmerman's keynote speech stressed the soundness of the position of the General Electric refrigeration department's wholesale and retail organization, and pointed out the rapid return of the buying public to realization and appreciation of quality instead of "price."

The conference was directed by A. A. H. Uhalt, manager of the dealer division and supervisor of wholesale operations in the field. Uhalt outlined to those at the conference a new wholesale plan of operation, a radical departure from the orthodox procedure but, one that is expected to make the positions of all General Electric dealers more sound than at any time previous.

The growth and enthusiastic acceptance of the instalment plan of purchasing, a method that a few years ago was frowned upon by all manufacturers, wholesalers, and retailers, was outlined by W. H. Crawford, vice president of the Commercial Credit Co.

"The instalment plan," he said, "has grown to be a strong and sturdy member of the purchase-plan 'family,' and today leads the merchandising parade by many millions of dollars. Scholarly economists and substantial financiers praise this method of buying, books are written about it, philosophies evolved, and it has taken its place as a mighty power in the land."

Other speakers on the conference program included:

A. M. Sweeney, manager of the production and distribution divisions of the refrigeration department, who outlined the foundation supporting the new General Electric Junior line and told of its possibilities.

H. T. Hulett, commercial division, "General Electric Points of Superiority."

A. L. Scaife, merchandising division,

(Concluded on Page 12, Column 1)

G-E CONTROL

1931
1933

GOING STRONG!

INTRODUCED in 1931—it was a hit from the start! Its dependable performance in 1932 gained new friends. And now, G-E control for domestic refrigerators advances to 1933 on a high tide of merited popularity.

Again and again, it has demonstrated its points of superiority: ease of wiring; ease of mounting anywhere on the refrigerator; accuracy of temperature control; completeness of overload protection; and fine appearance. Its unvarying reliability is attested by the manufacturers who have used it—and who plan to use it on their newest models.

If you haven't looked into G-E control for domestic refrigerators, it will pay you to do so. Ask to see an actual unit so that you can examine its precise construction. A G-E office near you will be glad to coöperate; or address General Electric Company, Schenectady, N. Y.

301-115H

GENERAL ELECTRIC

LEONARD HOLDS 15 FIELD CONVENTIONS

(Concluded from Page 1, Column 2)

been provided which show the distribution of wired homes in this country.

Mr. Taylor will outline points of the 1933 advertising and sales promotion plans, which include a dealer-getting campaign in 11 trade papers, a national magazine campaign starting in January, a national factory-paid newspaper campaign in every distributor's territory starting next spring, a new franchise manual, and an increased factory contribution to the cooperative advertising fund.

Discuss Franchises

A discussion of the various points of the Leonard franchise will be held, in which the Leonard executives will clarify new or altered clauses. The function of the dealer floor plan and finance plans offered by ReDisCo will also be explained during this part of the school.

At the completion of this stage of the school there will be a change in the objective of the proceedings. It will be assumed that the distributor has adequate dealer coverage, and that his problem is one of dealer education.

Among the subjects to be discussed under the heading of dealer training will be the following: the hiring and training of salesmen, the direction of salesmen, methods of getting prospects, ways of handling prospects, use of inside salesmen, compensation of salesmen, use of premiums, proper application of the action window display, local dealer advertising, billboard advertising.

Mr. Taylor, who will present the above subjects, will also discuss the electric refrigeration field in general.

Mr. Petrie will sum up the work of the school in a talk which will embrace such subjects as dealers' credits, service policies, appliance sales for jobbers, dealer-getting programs, small town coverage, dealer performance, the direct-selling plan to department stores, and the competitive situation.

Schedule of Schools

The schedule of schools, and the firms which will be represented at each are as follows:

Boston, Dec. 1 and 2—J. H. Burke & Co., Boston; Ballou, Johnson, Nichols, Providence, R. I.; Cressey & Allen, Portland, Me.; and Vermont Hardware, Burlington, Vt.

Los Angeles, Dec. 1 and 2—Graham Hambly & Son, Los Angeles.

New York City, Dec. 5 and 6—E. B. Latham & Co., New York City; H. M. Tower Corp., New Haven, Conn.; E. S. & E. Co., Inc., Albany, N. Y.; and Warner Distributing Co., Syracuse, N. Y.

San Diego, Calif., Dec. 5 and 6—Electric Supplies Distributing Co., San Diego.

Phoenix, Ariz., Dec. 7—Momsen, Dunnegan, Ryan Co., Phoenix, Ariz.

El Paso, Tex., Dec. 8 and 9—Momsen, Dunnegan, Ryan Co., El Paso, Tex.

Philadelphia, Dec. 8 and 9—Klein Stove Co., Philadelphia; Southern Wholesalers, Washington, D. C.; and the Richmond Hardware Co., Richmond, Va.

San Francisco, Dec. 12 and 13—Chanslor & Lyon Stores, Inc., San Francisco.

Chicago, Dec. 13 and 14—L. C. Wiswell Co., Chicago; Cohen Furniture Co., Peoria, Ill.; Radio Specialty Co., Milwaukee; and Central Supply Co., Minneapolis.

Portland, Ore., Dec. 15 and 16—Cronin Distributing Co., Inc., Portland, Ore.

Kansas City, Mo., Dec. 16 and 17—Russell Philco Co., Kansas City, Mo.; A. A. Schneiderhahn, Des Moines, Iowa; Auto Equipment Co., Omaha; Stimpson Sales & Investment Co., Wichita, Kan.; E. C. McKelvey Radio Co., Salina, Kan.; General Supply Co., Springfield, Mo.; Aeolian Co. of Missouri, St. Louis; Hollis & Co., Little Rock, Ark.; Spurrier's, Inc., Oklahoma City; and Interstate Electric Co., Shreveport, La.

Pittsburgh, Dec. 28 and 29—Williams Co., Pittsburgh; Front Electric Co., Wheeling, W. Va.; H. B. Alderman, Inc., Buffalo; and Radio & Motor Service Co., Altoona, Pa.

Cincinnati, Jan. 4 and 5—Marietta Chair Co., Cincinnati; Smith Radio Co., Louisville; Capital Paper Co., Indianapolis; and Foster Thornburg Hardware Co., Huntington, W. Va.

Atlanta, Jan. 6 and 7—Gilham Electric Co., Atlanta; C. M. McClung Co., Knoxville, Tenn.; Gas Engine and Electric Co., Charleston, W. Va.; Cain Radio Co., Jacksonville, Fla.; Glasgow-Allison Co., Charlotte, N. C.; McWhorter Weaver Co., Nashville, Tenn.; McGregor's, Inc., Memphis, Tenn.; and Radio Specialty Co., New Orleans.

Attend Detroit Meeting

The following were in attendance at the Detroit meeting:

Karl G. Ritter, W. B. Muse, A. D. Kelly, Buhl Sons & Co., Detroit; P. M. Staatz, W. H. Wilson, E. S. Hershberg, C. P. Humphries, E. Moyser, B. W. Smith, Inc., Cleveland.

D. C. Sampson, F. R. Keeler, F. J. Weaver, Columbus Ignition Co., Columbus, Ohio; Walter Nilsson, A. M. Ripslinger, J. Zwiedyk, General Distributing Corp., Saginaw, Mich.; R. DeVries, H. Leonard & Sons, Grand Rapids, Mich.

Factory men at the Detroit meeting included:

Mr. Petrie; Mr. Taylor; C. C. Campbell, Brooke, Smith & French advertising agency; R. J. Walker, assistant sales promotion manager; Charles Armstrong, vice president, ReDisCo; James O'Neill, new business manager, ReDisCo; S. D. Camper, district manager; R. E. Brian, Donaldson Lithographing Co.

INCREASE IN APPLIANCE SALES REPORTED

CHICAGO—More than the customary seasonal activity was shown in October in the sales of electrical appliances and household lamps, it is revealed in the monthly survey conducted among 623 wholesalers by officials of the Chicago Merchandise Mart.

Smith Retires From Servel Presidency

(Concluded from Page 1, Column 5)

Castle, Ind. Under his guidance and management this factory put out 19,500 Maxwell motor cars during the first year of its operation.

The Maxwell-Briscoe Co. was a unit of the United States Motors, and when the parent company failed, he, as manager of the most successful unit, was named receiver.

When the American Motors Corp. of Indianapolis went into bankruptcy in 1913, he was appointed trustee and general manager of the company.

He succeeded in reducing the company's liabilities, in selling the physical assets for 20 per cent more than the appraised value, and in realizing for creditors approximately 18 cents on the dollar.

No sooner had he finished salvaging this wreck than he was given another to save. In October, 1914, the Premier Motor Mfg. Co. went into bankruptcy, and he was named receiver by Federal Judge Anderson of Indianapolis.

In March, 1919, Col. Smith opened an office in New York City, specializing in automotive problems. One of his clients, the Republic Motor Truck Co., finally preempted all of his time.

Nov. 1, 1920, he moved to Alma, Mich., to assume duties as director, first vice president, and general manager of the Republic Motor Truck Co. and the Republic Truck Sales Corp. In February he was elected president and general manager of both Republic companies.

Shortly before Christmas of 1922, Col. Smith returned to his New York office and his practice of industrial engineering, which he continued five years until his association with Servel.

During the World War Col. Smith was a "dollar-a-year man," and rose from a civilian post in the ordinance department in Washington to a major in the Signal Corps, United States Army. He was honorably discharged with the rank of colonel of the Air Service Reserve Corps.

SALES PROMOTION PLANS TO BE TOLD TO G. E. MEN

(Concluded from Page 1, Column 2)

"Sales Problems and the Christmas Campaign Plan."

Other speakers on the two-day program are W. M. Timmerman, commercial division engineer; A. L. Scaife, Jean DeJen, M. D. Grow, and R. C. Cameron of the merchandising division; A. A. Uhalt, manager of the dealer division; R. C. Shaw, K. R. Davis, J. T. Dickson, E. H. Norling, sales promotion division.

Paul Dow, central district representative; W. M. Landmesser, manager of the commercial division, G. D. Kobick, manager apartment house division; Lorin Smith, Jr., Chicago, director of the General Electric Kitchen Institute; H. G. Selby, Detroit, Maxon, Inc.

The General Electric refrigeration department will be host to those attending the conference the evening of Dec. 1 at a banquet in Hotel Statler. Arthur B. Reeve will be toastmaster and a feature will be reception of the General Electric radio program.

$102,701 EARNED IN YEAR BY KELVINATOR

(Concluded from Page 1, Column 1)

this merchandise from our books at the then established cost figure. After this inventory was moved, further cost reductions were accomplished.

"We are entering the new year with the full advantage of economies and expense reductions which became effective during the past fiscal period and which will continue throughout the coming year.

"Refrigeration Discount Corp. has handled 12 per cent more business, in dollars, than during the previous year and 42.5 per cent more in units. Comparison of the unit increase to the dollar increase indicates the opening of new markets for the lower priced models. This has been accomplished with an actual reduction in the percentage of delinquencies.

"A careful nation-wide survey in the field of executives of the company indicates that an improvement in business is a reasonable expectancy, and we therefore have increased our appropriations for Kelvinator and Leonard advertising and sales promotion activities. This confidence is further justified by the fact that unit shipments for October, the first month in our new fiscal year, set an all time record for that month. November also has every indication of bettering past performances.

"The balance sheet reflects an increase in cash, reduction of inventories, reduction of funded indebtedness, improvement in ratio of current assets to liabilities, and increase in working capital, together with an increased volume of unit sales, which indicates the progress of the company during the last year."

G. E., WESTINGHOUSE MUST SELL STOCK IN RADIO CORP.

(Concluded from Page 1, Column 5)

cases in history" without a trial, the Department of Justice asked that the General Motors Corp. and the American Telephone and Telegraph Co. and their subsidiaries, all of which had been named as defendants in the original petition, be dismissed from the case.

These companies, according to Warren Olney, Jr., special assistant attorney general, who handled the negotiations leading to the consent decree, had already either dissolved their agreements with the Radio Corp. or otherwise met the government's demands.

The anti-trust suit was instituted in May, 1930.

DR. ALLISON MEETS WITH SEABOARD BUREAUS

(Concluded from Page 1, Column 3)

addressed a gathering of refrigeration men at Wilmington, N. C., with the schedule calling for meetings on Tuesday and Wednesday in Charleston, S. C., and Savannah, Ga.

The remainder of his itinerary is as follows: Dec. 1, Columbia, S. C.; Dec. 2, Raleigh, N. C.; Dec. 5, Asheville, N. C.; Dec. 6, Knoxville, Tenn.; Dec. 7, Charlottesville, Va.; Dec. 8, Wilmington; Dec. 9, Washington, D. C.

HOW To Get Refrigerator Specifications

You want to know the specifications of a certain electric refrigerator. What is the refrigerant used? The kind of insulation? The type of the control? The cabinet sizes? All these and other specifications of the products of leading electric refrigeration manufacturers are found in the New Supplement added to the Refrigeration Directory and Market Data Book. Detailed specifications of 354 models of household electric refrigerators made by 48 different companies are given. Facts about any particular refrigerator are easily found, since each refrigerator is indexed under both its trade name and the name of its manufacturer. This is just the information which hundreds of distributors, dealers and salesmen have been wanting in handy book form. This feature alone is worth much more than the small cost of the Refrigeration Directory.

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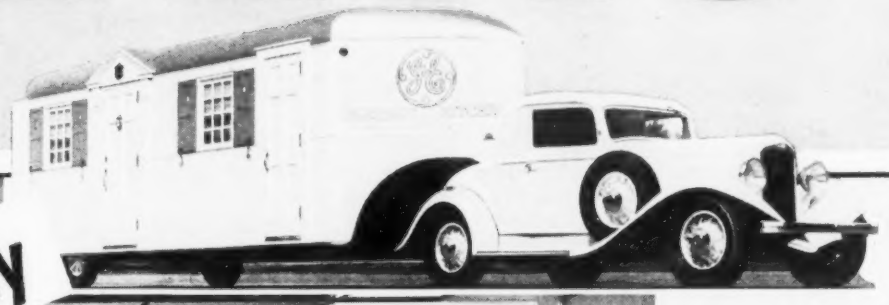
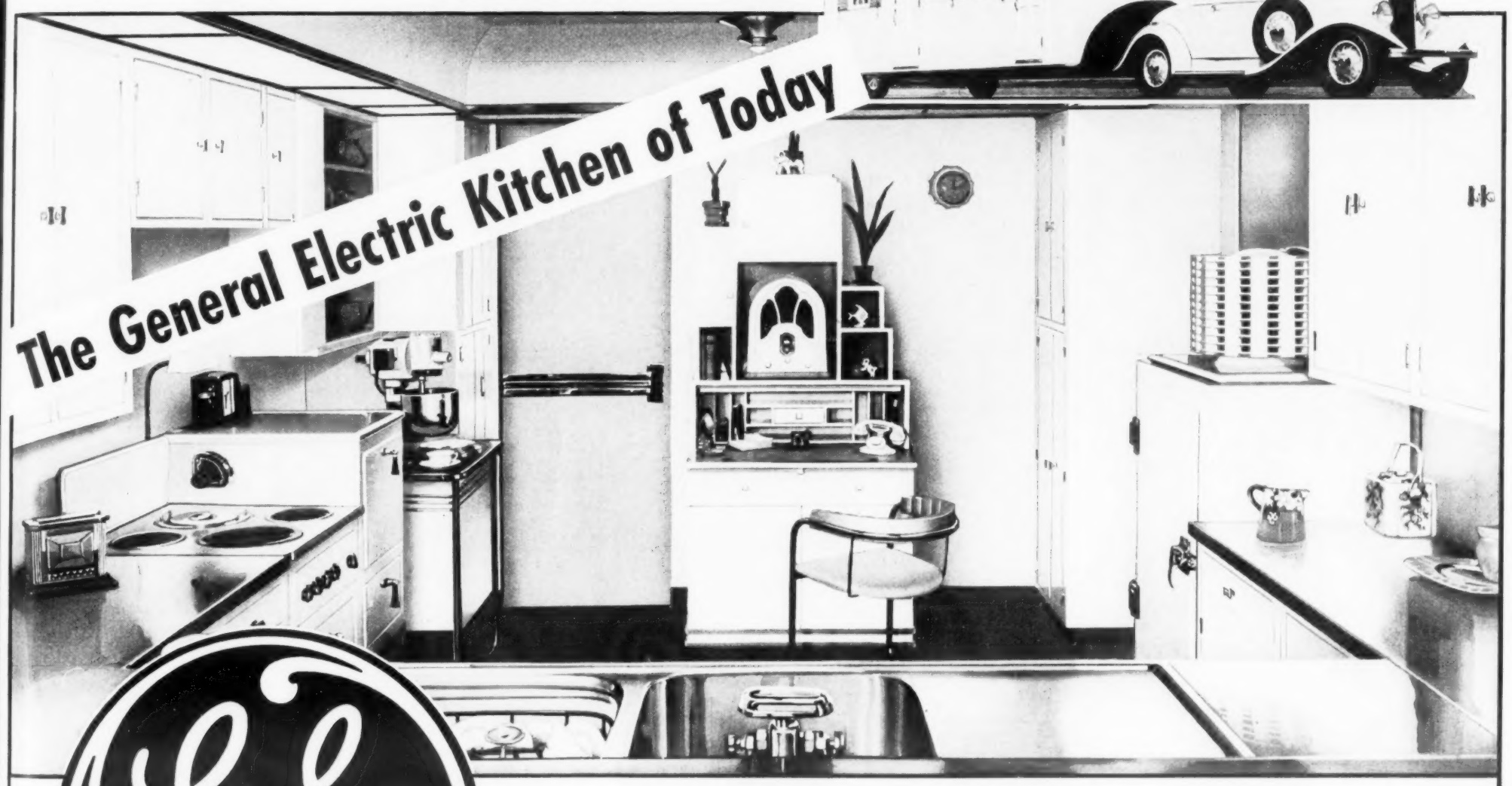


The General Electric Kitchen of Today



MOTHER'S WORKSHOP OF YESTERDAY

I often sit and dream about the good old-fashioned day
When mother ran the kitchen in the good old-fashioned way,
For my memory transports me in my recollective mood
And I see again my mother as she served the daily food.
And in my dreams I see once more those wondrous cakes and pies
And other things attractive to a pair of boyish eyes.

Oh memory how kind you are that you should give to me
Such happy recollections as the things that I can see!
For retrospect will always bring before my wandering mind
The joyous things, while leaving hard and bitter thoughts behind.
So time has taken from me, if I ever really knew,
How mother toiled and fretted with the things she had to do,
And how she struggled through it all with nothing else in sight
But working in the kitchen from the morning till the night.

The endless hours she labored, growing every year more gray
And worn out, just by cooking in the good old-fashioned way,
Were years of heavy burden that imposed an awful toll,
For they left a lasting imprint on our dear old mother's soul.
And what a price, I doubt if you or I have understood,
She paid to give to you and me the things that were so good.

No drudgery has ever yet contributed a part,
To instilling joy and happiness in any mother's heart,
Nor yet erased a single line from any mother's face,
Nor softened hands to give them back their former youthful grace.
So lift today the burden, as the least that you can do,
From the shoulders of the mother who has cared so well for you
Lest your children, looking backward, feel their eyes grow wet with tears,
When retrospect parades for them their mother's weary years.

—BEN ALLEN, *General Electric Company, (Refrigeration Department), District Representative, Philadelphia, Pa.*

A CENTURY AGO undaunted leaders with indomitable courage pushed civilization's frontiers westward. Undismayed by dangers and hardships, undiscouraged by disappointments American pioneers sweat, fought and prayed their way through seemingly unpassable barriers—and conquered a vast empire rich in new opportunities.

Decades later, General Electric scientists and engineers with this same pioneer spirit began another relentless march through new frontiers—advancing the standards of living. Millions of dollars and countless hours were spent in the great laboratories of General Electric—searching, testing, proving. Today, electricity has emancipated American women from household drudgery—and with outposts spread across the continent, new opportunities for rich rewards have been earned for General Electric retailers and salesmen.

The G-E refrigerator, pioneer of the General Electric Kitchen, assures a continuing security and success to the G-E retailer—born a leader it will continue a leader.

GENERAL ELECTRIC COMPANY, ELECTRIC REFRIGERATION DEPARTMENT, SECTION DF113, HANNA BUILDING, 1400 EUCLID AVENUE, CLEVELAND, OHIO

9 CAUSES FOR PRICE CUTTING ARE FOUND

MILWAUKEE—Nine causes are responsible for price cutting, according to a questionnaire sent out by the Cramer-Krasselt Co., advertising agency here, to 10,000 companies of highest rating to discover the why of depressed pricing.

The question asked was "Do you believe that business should ever be taken below normal cost?" The 800 replies received were analyzed by the National Association of Cost Accountants, who found that 23 per cent of the companies confessed to being willing to do business on a loss basis.

Analysis of Findings

In the bulletin of the Illinois Manufacturers' Cost Association, these findings are analyzed as follows:

"The investigation covered the textile, food, automobile, accessory, heating and plumbing, builders' supply, hardware, drug, machinery and mill supply, construction, furniture, and home appliance industries.

"After describing a few contingencies in which the practice of depressed pricing might be justifiable, the discussion proceeds to the destructive character and influence of the following types of price vices: bootlegging, underbidding, sales sabotage, distributive subsidies, confidential discounts, excessive discounts, and extra allowances.

Causes of Depressed Prices

"Depressed pricing has been traced to the following causes:

"(1) Failure of management to become informed of (or sympathetic toward) modern merchandising methods.

"(2) Ignorance of costs and lack of budgetary control.

"(3) Desire to trade destructively on established goodwill.

"(4) Willingness to make price concessions in the effort to survive.

"(5) Desire to buy into certain markets, territories, or distributive outlets in which competition is strongly entrenched.

"(6) Lack of sales protection resulting from inadequate advertising, sales promotion, sales operation.

"(7) Fear of temporary efforts in adopting firm policies against competitive concessions.

"(8) Defensive distributive position caused by lack of proper contact, training, cooperation, and support.

"(9) Tendency to follow competition rather than to strike out toward fulfillment of public needs."

LIBERTY REFRIGERATION CORP. TAKES OVER DIVISION

PROVIDENCE, R. I.—Liberty Refrigeration Corp. has taken over the refrigeration department of Liberty Tool & Gage Works here, and is manufacturing a complete line of household and commercial electric refrigerators.

Edwin H. Arnold is president and treasurer of the company. James H Readio, Jr., vice president, and Ralph M. Greenlaw, secretary.

G. E. Kitchen Coach Dedicated

Mrs. H. K. Curtis, president of the Milwaukee County Federation of Women's Clubs, played the leading role recently in christening the General Electric Kitchen coach of the E. H. Schaefer Corp., G. E. distributor.

How To Sell Refrigerators

As Told By J. D. Faber, Minneapolis G. E. Salesman

By Elston D. Herron

MINNEAPOLIS—J. D. Faber, refrigerator salesman for O. F. Stuefer, Inc., General Electric distributor here, makes sales by calling consistently on his prospects until they have confidence in him, and are enthusiastic about his product.

Salesman Faber contends that his frequent calls are not intended to "wear his prospects down." Rather, he says, each call increases the prospects' interest in what he has to sell.

"It takes 10 calls to sell the average prospect an electric refrigerator," he says. "I call first on the housewife, and try to sell her the need of electric refrigeration.

Calls on Husband

"Next, I call on the husband, and I try to appeal to him on the basis of economy and his desire to save his wife work."

If the sale is not made on this second call—and it usually isn't, this salesman says—Mr. Faber calls every day on the housewife, if she has appeared quite interested on the first call, and makes his presentation over and over again.

"On these later calls, my sales talk is almost exactly the same as it has been on the first," he says. I add a few new details to it each time, but I aim chiefly to refresh in the prospect's memory the major points I have made before."

Gradually, he explains, the prospect, because of his repeated visits, begins to have considerable confidence in him. When this stage is reached, Mr. Faber says, the prospect's enthusiasm over the refrigerator increases much more rapidly than it has before, and it becomes less difficult to close the sale.

"After a housewife has become genuinely enthusiastic, she will usually succeed in 'selling' her husband on the refrigerator, and I can close the sale with him."

Mr. Faber says that he closes most of his sales without making a demonstration. "It's difficult to get most prospects down to the store," he explains, "and most people know what the refrigerator looks like, anyway." So Mr. Faber uses pictures.

Sometimes, more than 10 calls are necessary to close a sale, Mr. Faber says. "I called every day for 33 days on one prospect before I got her order," he adds.

'Closing Calls'

Four nights a week, this salesman makes his "closing calls." He never tries to have more than one closing interview in an evening, he says, since he believes the final presentation should be so complete as to accupy from one and one-half to two and one-half hours.

Except for his evening calls, Salesman Faber plans none of his work on a schedule. "Nowadays, a salesman has to make his calls when he has the best opening—not according to the sales manual," he says.

To the average prospect, Mr. Faber tries to sell a 6.7 cu. ft. model. He says that prospects are usually dissatisfied with smaller refrigerators, and that "dissatisfied users are not boosters."

Sells Quality First

"I always try to sell 'quality' first, and 'price' last," he states. "A sale is apt to flop if price is mentioned early in the interviews."

For one reason—and one only—this salesman has much respect for his sales manual. Of it he says: "I read it regularly to refresh my memory on all features of the G. E. refrigerator.

"To close the average sale, it is necessary that the salesman mention every merit of the product he sells, and the manual will brush him up on that part of his presentation.

"Unless he reviews the manual occasionally, the best salesman will forget to mention some important point about the refrigerator."

"Planned presentations" are taboo with Salesman Faber. He says that "every presentation must be adapted to the prospect."

Prospects Secured From Users

Best prospects are found through General Electric refrigerator users, according to Mr. Faber, who gets some prospects by cold canvassing, but thinks this system is often a waste of valuable time.

Every 45 days, he calls on his users with the question, "Can I be of any service to you." Prospects found through users are usually more easily sold than those obtained from other sources, he thinks.

When he sells a refrigerator to a prospect found for him by a user, Salesman Faber always presents the latter with some gift—never money.

Says he: "A gift always looks like more than its equivalent in money."

Every six weeks, he sends a mailing piece to each of his best prospects.

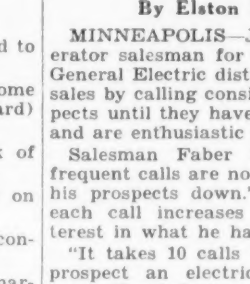
Holiday Campaigns

During the period before each holiday, Salesman Faber makes a strong talking point of the fact that the housewife will be buying much food for that day, and that such food "deserves to be kept in a G. E."

It is during the months of January and February that this salesman finds it almost impossible to make sales in cold Minneapolis.

He has consequently found it ultimately most profitable to spend these two months in preparing prospect lists and laying all plans for the approaching selling season.

Salesman Faber thinks it is a mistake for any salesman to attempt to sell more than one appliance. "When a salesman has several things to sell, he can't do any of them justice," he says.



WHEN
Will Sales Pick Up?

Future trends can best be predicted by past records. Electric refrigeration distributors, dealers and manufacturers find it valuable to know industry trends in terms of actual sales figures. Analyses of refrigeration sales over a ten year period are given in the Refrigeration Directory and Market Data Book, and the new Supplement presents a month-to-month tabulation for 1932. Classification of NEMA sales by price divisions and cabinet sizes, and sales by states, are also given.

590 PAGES OF USEFUL INFORMATION

Complete With New 120 Page October Supplement

1932 REFRIGERATION DIRECTORY AND MARKET DATA BOOK

Use the Coupon on Page 11 to Send Your Order

DELANO LISTS FIVE NEEDS OF SUCCESSFUL SALESMAN

ROCHESTER, N. Y.—Five qualifications for a successful salesman were outlined by F. A. Delano, assistant to the vice president of Gibson Electric Refrigerator Corp., Greenville, Mich., in a recent address before the Electric League of this city.

"I do not believe," stated Delano, "that a salesman has to be born a salesman, but I do know that he must possess certain qualifications to succeed in the selling profession.

"First of all he must be able to make friends quickly. Secondly, he must inspire confidence in those with whom he comes in contact. The third qualification is education. This doesn't mean that a man must be a college graduate, but it does mean that he must have learned to talk well, think clearly, remember accurately, and imagine constructively.

"The fourth thing of importance is good breeding. However, it isn't your birth that has to do with good breeding. It is what a man is, and how he thinks and acts. The fifth and last qualification is the possession of a definite desire. A desire to do good, to please, and to succeed for the sake of success and not merely for the sake of making a living."

The Electric League of Rochester is composed of all electric appliance dealers and salesmen in the city, and meets once a week for the purpose of hearing the sales executives of various electric appliance manufacturers discuss the ways and means of increasing sales.

H. D. MacRae, Gibson electric refrigerator distributor for the Rochester, N. Y., and Syracuse, N. Y., territory, was chairman of the recent meeting and introduced Mr. Delano.

DEPARTMENT STORE SALES SHOW SEASONAL INCREASE

WASHINGTON, D. C.—Department store sales increased by their normal seasonal amount during October, and the Federal Reserve Board's adjusted index measuring their value stood firm at its highest point since June, according to a recent statement by the Federal Reserve Board.

In September, when sales made their first advance since March, department stores ceased reducing their stocks, purchasing enough goods to offset the increased sales, according to additional information made available by the board.

The adjusted index of department store sales, which is based on 1923-25 as 100, was steady at 70 during October, four points higher than its record low in August. The increase in value of sales from September to October, therefore, was by just the amount which is normal for the season.

Sales during October, however, were 21 per cent lower than in the same month a year ago, and for the 10 months of 1932 they are 23 per cent lower than during the same period a year ago, according to the statement.

Department store stocks, for which information is available only as late as September, in that month checked a steady shrinkage which had been going on for more than a year, the board's records show. The adjusted index stood steady at 61 in both August and September.

KELVINATOR BRANCH HEAD ELECTED OFFICER OF CLUB

NEW YORK CITY—Howard B. Barber, manager of the New York branch of Kelvinator Sales Corp., has been elected treasurer of the Sales Executive Club of New York City.

NEW KELVINATOR DEALER

EVANSVILLE, Ind.—The R. & G. Furniture Co. has been appointed exclusive Kelvinator dealer in this city. The appointment was made by Stratton & Terstegge, distributor at Louisville.

CONTRACTOR DEALER RELATIONS DISCUSSED

CHICAGO—Real thought must be given to the relationship between the utility and the electrical contractor-dealer at the present time, stated W. E. Whitwell, Philadelphia Electric Co., at the joint meeting of all committees of the national sales section of the National Electric Light Association held here recently.

The need for wholehearted acceptance of commercial programs by utility executives, and the need for amicable and cooperative trade relationship, stood out as the most important subjects of the series of committee meetings.

Electric refrigeration is considered as the star performer in the sales field, according to the Nela sales committees. Unofficial assurances from refrigerator manufacturers gave confidence that the work of the refrigeration bureau will be continued in 1933.

Out of the meeting of the National Electric Cookery Council came news that the national organization of the electric range-selling campaign is taking shape. The first local council has been formed in Milwaukee, and others are coming into being.

In some parts of the country, electric range progress is being hindered by the availability of very low-cost natural gas, and to some extent by the apathy of local utilities, according to committee reports.

That present range prices must be maintained was stated by Pierre Miles, Edison General Electric Appliance Co. "It is a necessity," says Miles, "since not otherwise can the manufacturers continue and enlarge their advertising and selling appropriations."

Surface wiring as a means for increasing the number of outlets in homes was discussed by the home-wiring committee, and a motion was carried to offer to the section executive committee the suggestion that such surface wiring methods as have been or may be approved by the National Electrical Safety Code be promoted by the electrical utilities.

LEONARD CO. PLANS LARGE WORLD'S FAIR EXHIBITION

DETROIT—The Leonard Refrigerator Co. of Detroit and Grand Rapids, Mich. will have the largest and most comprehensive exhibit of its history at the Chicago Century of Progress Exposition, declares A. M. Taylor, director of merchandising of the company. The exhibit will be located in a place of prominence in the Electrical building.

Although products of the company have been exhibited at all major expositions taking place during the last 50 years, the Chicago show will mark the first time Leonard has appeared before the world's fair throngs as an electric refrigerator.

The first show of international proportions in which Leonard iceboxes were exhibited was the World's Fair, or Columbian Exposition, at Chicago in 1893. The company's line of iceboxes made its second major appearance at the Pan-American Exposition at Buffalo in 1901. Then, in 1904, came the St. Louis Exposition, at which Leonard was a veteran performer.

In 1907, Leonard went as an exhibitor to the exposition at Jamestown, Va., and there introduced something new in icebox construction. It was the all-porcelain interior which Leonard had introduced to the industry a short time before.

Leonard iceboxes then were displayed at the Panama-Pacific International Exposition at San Francisco in 1915 and at the Sesqui-Centennial at Philadelphia in 1926.

KELVINATOR REPRESENTATIVE VISITS HAWAII

HONOLULU, Hawaii—George F. Murray, Asiatic representative of the Kelvinator Corp., recently arrived here for a month's stay, during which time he will conduct a sales school for the instruction of salesmen in the selling of Kelvinator refrigeration.

Mr. Murray's function as Asiatic representative includes the contacting of distributors and agencies for Kelvinator products throughout the territory of Hawaii, and in the Orient, including the Philippines and the Dutch East Indies.

He was met at the dock by Emil Stermer, manager of Kelvinator sales of the Weldsteel Supply Co., Kelvinator distributor in the Hawaiian Islands, and by Harry Z. Colvin, service manager.

KELVINATOR DEALER SELLS 2 COMMERCIAL JOBS

FARMINGTON, Minn.—Nordquist & Ellison, Kelvinator dealer in this town of 239 families, made the only two commercial installations in the town during the current year.

One was an eight-foot display counter in the store of Fred Griebe; the other a display counter in Johnson's Fine Foods Store.

The dealer was assisted in the sales and installations by E. R. Jahreiss of the Graybar Electric Co., distributor in the Minneapolis territory.

MAJOR BLOOD TALKS ON HISTORY OF NORGE

CHICAGO—Norge Corp. entered the refrigeration industry at the psychological time, stated Major Howard E. Blood, president of the corporation, in a recent address before the Chicago Advertising Council.

Although the company was formed in 1927, the Norge refrigerator did not make its debut until 1930. The delay was deliberate, stated Blood.

"Our company felt that the psychological moment for its bid was when costly and difficult educational work had been completed, and the industry was entering the following period of expansion.

"We believe that companies which enter a field too soon have entangling alliances to regret in many cases. Norge made its bid at a time when the star of some types of early refrigeration dealers was setting, and radio dealers and other capable specialty outlets were eyeing the possibilities with interest.

"Thus Norge opened its drive when public interest was reaching its zenith, and when it had the pick of some of the finest sales talent in the country.

"Business this year," stated Blood, "will approximate 95 per cent of 1931 volume, and has been handled at profitable prices."

Touching on dealer policies, the Norge chief said a study convinced the company that what the dealer needed was a fair profit and fewer models on which to dissipate his energies. Accordingly Norge concentrated on three sizes for domestic refrigeration.

Advertising, running primarily in newspapers, has stressed "See the Norge before you buy," giving Norge salesmen a chance to test their prowess. Norge advertising, planned by Cramer-Krasselt Co., Milwaukee, was displayed on panels at the meeting.

ROBERTSON REPORTS ON INDUSTRY REHABILITATION

WASHINGTON, D. C. — Reporting upon the activities of the National Committee on Industrial Rehabilitation, A. W. Robertson, chairman of the board of Westinghouse Electric & Mfg. Co., has made public a list of organizations which have responded to the appeal made by the committee.

Companies responding have promised to spend more than $70,875,000 for new machinery, equipment, and plant facilities. These figures represent, according to Mr. Robertson, a gain of about 2 per cent of the total annual loss of income now suffered by the capital goods industry.

Manufacturers in the electrical field who have agreed to expend sums in rehabilitation activities are: Westinghouse Electric & Mfg. Co., $1,260,000; Allis-Chalmers Mfg. Co., $200,000; and Crosley Radio Corp., $500,000.

Heading the list of agreed expenditures are: American Telephone and Telegraph Co., $35,000,000; Standard Oil Co. of New Jersey, $20,000,000; and Pacific Gas & Electric Co., $5,000,000. Another utility company which has signified its intention to participate is the Montana Power Co., with $100,000.

Normally, these industries have an annual income of $5,000,000,000. This has dropped to little more than $1,000,000,000, "so it can be seen that the commitments reported actually have reduced the expected loss for 1932," Robertson says, adding that "the outlook for success in the movement is bright, for the real work has just begun."

'DERBY' TICKETS CASHED BY MARYLAND DISTRIBUTOR

HAGERSTOWN, Md. — Kelvinator-Bohman Co., Kelvinator distributor of this city, held a Derby payoff, dealer and salesmen meeting recently.

C. R. Brogan, Kelvinator district manager, made the Derby prize awards for Kelvinator, and George M. Bohman, president, paid off for his company. The meeting was presided over by A. H. Warne, secretary-treasurer of the distributorship.

There was a "mystery prize" donated by A. H. Warne and R. P. Hussey, wholesale salesmen, to be awarded to the salesman or service man who did the outstanding job of 1932. This was a trip, to be held one year and competed for in 1933. The man who wins it twice is to keep it. It was presented at the meeting to R. J. Pancoast whose 1932 sales topped all others.

G E. REFRIGERATOR, CASE INCREASES BUSINESS

CLARKSBURG, W. Va.—O. M. Parrill, grocer in this town, has recently reported a large increase in business due to the installation of a General Electric CS-30 conditioned-air commercial refrigerator, and a D-124 conditioned-air display case. The sale was made by Bates & White, dealer here for W. N. Hoffman, Inc., Wheeling, W. Va., distributor.

What Makes a GOOD Refrigerator?

- With the market flooded by electric refrigerators of widely varying prices, what is it, after all, that distinguishes a ***good*** refrigerator from a poor one?

- Do dealers really care what makes a good refrigerator?

  No matter how low the price goes, there always seem to be plenty of outlets for shoddy ones. Yet, it must be more or less obvious that there can be no permanent satisfaction in such merchandise and no permanent business in handling it.

- In selecting a good refrigerator, there are many necessary factors of only comparative importance. Appearance and gadgets can be built into the cheapest kind of jobs. A degree of perfection in superficials can be approximated by almost any manufacturer or assembler.

  But there are two factors of such great importance as to supply the major considerations in the choice of a refrigerator.

  One is the compressor. How long must it operate to maintain satisfactory temperatures in the box? How much current does it consume in doing so?

  The other point is the insulation. And here appearances are deceptive. The insulation is not visible. Its condition in use can never be observed. Yet it alone can make an otherwise good refrigerator poor and unsatisfactory in operation, quickly deteriorating in efficiency.

- Insulation ***must*** provide a high degree of resistance to the passage of heat. It ***must*** continue to give good thermal insulation even in the presence of water vapor which inevitably penetrates any insulation. It ***must*** be odorless and non-absorptive of odors. It ***must*** be permanent in its efficiency.

- No other insulation so nearly matches these requirements as Dry-Zero. In addition it has the advantage of extreme lightness, saving many pounds of shipping weight.

- It is because of the outstanding advantages of Dry-Zero that more electric refrigerator manufacturers use it than any other. In the specifications issue of Electric Refrigeration News, 16 of 33 makes are listed as using Dry-Zero.

  Any manufacturer who wants to hold his dealer organization—any dealer who wants assurance of dependable and efficient insulation and its effect on satisfied customers and permanent business will do well to consider Dry-Zero carefully.

- Proof that any refrigerator is better with Dry-Zero insulation and a courteous discussion of insulation by Dry-Zero engineers are at your disposal.

Dry-Zero Corporation, Merchandise Mart, Chicago, Illinois.
Canadian Office, 677 Broadview Avenue, Toronto.

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN **DRY·ZERO**

MERCHANDISING SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Week by
BUSINESS NEWS PUBLISHING CO.

Also publishers of REFRIGERATED FOOD NEWS (monthly) and REFRIGERATION DIRECTORY and MARKET DATA BOOK (annual)
550 Maccabees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:
U. S. and Possessions and countries in Pan-American Postal Union: $3.00 per year; 2 years for $5.00
Canada: $6.00 per year (U. S. Money)
All Other Countries: $4.00 per year; 2 years for $7.00
Advertising Rates on Request

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VOL. 7, NO. 13, SERIAL NO. 193, PART 1, NOV. 30, 1932

Larger Cabinets

BIGGEST news of the month for manufacturers, perhaps, is the prediction that sales of larger-sized household electric refrigerators may increase proportionately next year.

This prediction is being made by more than one sales manager, and sales promotion plans for 1933 are being predicated, in many instances, on the supposition that there will be a widespread demand for 7-cu. ft. boxes next spring and summer.

Foremost of the reasons for making this prediction is the fact that the political situation seems pregnant with beer. Election of Roosevelt, and results of popular referendums on modification of the Volstead Act, have led some municipalities to cease all prohibition enforcement activities and to desist from prosecuting violators. It is rather generally expected that the next Congress will work toward modification of the Volstead Act to permit the sale of beer-with-a-kick.

All this, of course, presages an enlarged market for commercial refrigeration equipment. It also seems to indicate a demand for household refrigerators with sufficient capacity for quantities of bottled goods. Models for 1933, accordingly, are being designed with telescopic, collapsible, and folding shelf arrangements to permit the storage of tall bottles. Furthermore, distributors and dealers in many cities are preparing to lay stronger emphasis upon larger models with "party-sized capacity."

A second motive for paying more attention to the promotion of larger-sized cabinets is the observation made by several executives that there is an extraordinarily wide spread between prices of 4-cu. ft and 7-cu. ft. models in prevailing price schedules. This spread ranges from $70 to as much as $140; and a good many sales managers will tell you that such a spread is probably unwarranted.

The reason for this spread, of course, is the fact that the industry has united in concentrating its efforts this year on obtaining a low-priced "leader" model of 4-cu. ft. capacity or less. Manufacturers make scant profit, if any, on these "midget models." Discounts for distributors and dealers are generally smaller on the "leaders," and the refrigerators are generally denuded of all but the bare essentials.

Two forces have operated to effect this concentration on small sizes. One is a price-minded public which, dealers feel, can be lured into showrooms only by advertising sensationally low prices. Second is the heavy demand for small-sized boxes by apartment houses.

Apartment rehabilitation and sales to receivers have kept many distributors out of the red this year, and have accounted for a tremendous volume of electric refrigeration sales. Because this demand for small-sized boxes already exists, production managers may have deemed it wise to concentrate on the 4-cu. ft. models.

That promotional stress may be placed on 6- and 7-cu. ft. models next year, however, seems more than possible. It will be remembered that the automobile industry long ago settled on the five-passenger sedan as the standard model, and that because of quantity production of these models, they have often been priced lower than roadsters, coaches, and smaller jobs. Concentration on a 7-cu. ft. box might produce similar results.

Hopes that a replacement market for electric refrigerators may open up within the next couple of years is also encouraging those who are thinking about emphasizing larger models. There are some who believe that thousands of electric refrigerators sold in 1932 have been constructed so poorly that they will not give satisfaction, and that their owners will be good-and-ready to replace them within a year or two. Because so many of these refrigerators have been of inadequate size, it is felt that when the replacement sale is made, a larger model will get the call.

Just how far the movement toward larger sizes will go next year is, of course, as problematical as speculation regarding the industry's probable sales total in 1933. It should be recorded, however, that there are several executives whose thinking is tending in that direction.

Gleanings from Other Periodicals

STUDY THE ITHACA PLAN

ONE of the outstanding contributions to merchandising is the Ithaca plan described in the James E. Davidson Nela prize paper by W. J. Cashman and F. S. Hoefer. This is a practical plan for cooperative merchandising that has produced results. It shows how an intelligent analysis of conditions in any area permits the electrical selling agencies to develop a cooperative and harmonious sales plan.

First comes a market survey to find out what has been sold, who sold the devices, the purchasing power of the market, and the suggestions of all sales outlets. Next comes a survey of merchandising methods of other industries which try to get their share of the consumer dollars. Then it is possible to use these facts pertaining to the market area to develop a merchandising plan that will operate. This will differ in details in the several parts of the country, but the basic ideas in the Ithaca plan can and should be applied in all regions.

Competition and bickering between sales outlets are eliminated; concentration is had on the sales of load-building appliances; the utility sells, but also helps all other outlets to sell; utility sales executives act as sales executives for all outlets and are paid a salary plus a bonus based on total load-building sales by all outlets; full advantage is taken of coordinated advertising, campaigns, displays, and promotion; sales quotas are established for all areas on a load-building basis; specialty selling is used where it is justified and the utility affords all possible sales aid to all outlets without introducing paternalism or removing the incentive for each outlet to sell. The Ithaca plan points the way to more business.—*Electrical World*, Nov. 26, 1932.

STILL WAITING?—IF SO, FOR WHAT?

THE floods of political oratory cease, "the shouting and the tumult die." Now in the ensuing welcome silence, practical Americans can better plan their course of business action.

What shall it be, watchful waiting or persistent plugging?

We have had too much watchful waiting during the bygone months. "Let's wait until Congress adjourns; let's wait until the conventions are over; let's wait until election takes place."

Watchful waiting may at times be meritorious, but its continued practice gets one nowhere. Our practice of it has inoculated some of us with the "manana" virus. And this "tomorrow" habit saps the vitality of those who indulge in it.

There are those of us who planned renewed sales effort had the election gone the other way. We may be tempted to wait a while longer to see what happens. How much longer? The political die has been cast for four years. Better start if you expect to get going at all.

Business takes both its politics and its politicians too seriously. Men did business and made profits long before the first Democrat or Republican cast his ballot. Men will continue to do business profitably long after these party labels are mildewed and motheaten.

Have no fear of a "radical" administration. The party in power always becomes conservative. Witness the erstwhile Labor government of Great Britain.

Have no fear of the abandonment of protective tariffs and the ensuing dumping of foreign goods and ditching of American wage levels. Economic pressure, not of political parties, dictates tariff acts. Witness "free trade" England.

Have no fear of a discontinuance of established reconstruction and rehabilitation policies. No doctor will change the medicine of an improving patient for whose recovery he is responsible.

The present attitude of our business men will do more to determine the fate of American business than the problematical actions of administrative and legislative bodies. If we extend the period of watchful waiting, business will *not* get better and political experimentation will be in order. If we throw off the manana virus and put our shoulders to our individual wheels—now—business will continue to improve and we shall insure the perpetuation of sound governmental policies.—*The Iron Age*, Nov. 17, 1932.

COMING BACK

FOR many weeks records kept by the producers of electrical energy have shown that the consumption of power has been steadily increasing.

This, of course, was a very gratifying sign; for increased consumption of power can only mean increased manufacturing and production, and consequently, increased employment and payrolls.

Now comes another indication, almost as significant as the increase in consumption of electrical power.

For one solid year, there had been a downward trend in the number of domestic electric customers. Month after month the total showed ominous decreases.

The figures for September have just been issued, and they show that coincident with the increased manufacturing and production indicated by the increased use of electrical power there was a sharp reversal of the downward trend so far as domestic electric consumers were concerned. In fact, the gain in September over August was approximately 10,000 meters.—The Gloversville, N. Y., *Herald*, Nov. 12, 1932.

On Our Bookshelves

THE ADVERTISING AGENCY LOOKS AT RADIO

Edited by: Neville O'Neill. Publisher: D. Appleton and Co. Pages: 233. Date of Publication: 1932.

A comprehensive survey of the principles, problems, and possibilities of radio advertising as viewed by advertising agents who handle the largest broadcasting accounts in the country has been attempted in this book by Neville O'Neill, formerly president of Neville O'Neill, Inc.

Eighteen advertising men, representing well-known agencies, have contributed as many chapters to the book. The subjects discussed included "Who Should Use Radio Advertising"; "What the Radio Audience Wants"; "Checking Results"; "Spot and Chain Broadcasting"; "Costs of Radio Advertising", etc.

Writing on the topic, "Radio Broadcasting as an Advertising Medium," L. Ames Brown, former president of Lord and Thomas and Logan, New York City, and chairman, A.A.A.A. committee on radio broadcasting, says: "I believe in radio as an established advertising medium.

Real Advertising Power

"I have seen the results obtained from it by our clients. When I see a million people responding to a sales message on one of our programs—and spending nearly a million dollars for the privilege of sampling a new product announced in a radio program—I know that radio has taken rank with the printed page as a real power in advertising.

"The future of broadcasting in this country," states Brown, "just as much as the future of newspaper and magazine publishing, depends upon its profitable use as an advertising medium."

In answer to the question "Who Should Use Radio Advertising?" Howard Angus of the radio bureau of Batten, Barton, Durstine and Osborn responds: "Broadcasting is most ideal for the man who makes an article that 25,000,000, of all kinds of people—rich men, poor men, beggar men, thieves—really can use."

Robert T. Colwell of the J. Walter Thompson Co. discusses the subject of "The Program as an Advertisement." He holds that the fundamental idea of the radio broadcast is advertising, and that that fact should not be shamefacedly glossed over. He scoffs at the idea that programs should be built for the purpose of creating good will.

"All of us act from self-interest, not from sentiment," says Colwell. "We want to get the most for our money. Show a man how he can gain by using your product, and he will buy it. That is basic in all advertising—you can't leave it out of radio."

Showmanship of Program

"Showmanship" is the secret of a successful radio program, according to Colwell. This he defines as "a combination of unity, variety, pace, and punch." A well-produced show, keyed to the tastes of the people who buy and sell any given product, is the fundamental of successful radio, he states.

"If any one asks you, 'Does the public like jazz or classical music or drama or talks?' here is your answer. The public likes them all," states Colwell. "It will listen to any type of program. The most popular programs on the air do not fall into any one type of entertainment. They have only this in common. Each one is done supremely well."

Hubbell Robinson, head of the radio department of Young and Rubicam, treats in more detail the subject "What the Radio Audience Wants." He has found that music heads the list of preferred entertainment, and that the time of day that the program is broadcast influences the taste of the audience.

In the morning women want cooking recipes, beauty hints, and talks on child care, while on the evening program the family want entertainment more than instruction.

Selecting Stations

"Selecting the Station List" is the subject of the chapter written by Charles F. Gannon, director of radio, Erwin, Wasey and Co., Inc. He states that no infallible formula for the selection of radio coverage has yet been devised.

Personal opinion, the results of too few national surveys, popularity contests, previous experience, and plain faith are among the indices used at present, he says, all of which are inadequate.

J. T. W. Martin of the radio bureau of Batten, Barton, Durstine and Osborn discusses "Copy for the Ear." Radio copy must closely resemble outdoor advertising because the sense impression it can register on the prospect is a fleeting one, states Martin. Copy for the air must be composed in extremely simple style, so that no listener can fail to grasp the full meaning, he explains.

Two women have contributed chapters to the book, Dorothy Barstow, head of the radio department of McCann-Erickson, Inc., and Mary Loomis Cook, former head of the radio department of the Blackman Co.

Miss Barstow writes on "How to Present Your Commercial Announcements," while Mary Loomis Cook discusses "Programs for Women." On the subject of women's programs, Mrs. Cook says: "What do women want to hear? They want to hear what is newest and most correct. No matter how slender their budgets they want to be able to impress a friend, a relative, a neighbor."

"Radio Production" is the topic treated by Robert A. Simon of the J. Walter Thompson Co. while "Checking Results" is discussed by Richard Compton of the Blackman Co.

M. A. Hollinshead, director of radio department, Campbell-Ewald Co., describes the use of electrical transcriptions, and holds that they are the answer for spot broadcasting (broadcasting from local stations and not over a network).

The subject of "Spot Versus Chain Broadcasting" is duly considered in the following chapter by Preston H. Pumphrey, manager of the radio department, Fulier, Smith, and Ross, Inc.

His conclusions are that in the densely populated areas, network broadcasting is far more economical than spot broadcasting, while in the more scattered markets spot broadcasting affords decided economies.

Cost of Radio Advertising

A chapter on the "Cost of Radio Advertising" is written by James Martin, radio director, Federal Advertising Agency, Inc. "Merchandising in its Relation to Radio" is another chapter, the combined effort of Harry Shinnick and Irvin Borders of Calkins, Shinnick, and Borders.

Carl M. Baumhart, publicity counselor, Mandeville Press Bureau, has contributed a discussion of "Publicity and Advertising in Relation to Broadcasting."

"What the radio industry needs at present," says Baumhart, "is a group of publicity men who can dramatize the industry in the way clever publicity men dramatized and still dramatize and continually dramatize the plays, the musical comedies, and the silver screen.

"The lack of good publicity, the lack of any ordinarily intelligent effort on the part of sponsors of programs, is making radio lopsided."

Export Radio Advertising

H. H. Kynett of the Aitken-Kynett Co. contributed a chapter on "Relations Between Stations and Agencies," while Neville O'Neill, editor of the book has written a chapter on "Export Radio Advertising."

O'Neill states that "radio may well play a great part in helping to hasten prosperity throughout the world through the stimulus it can give to the sale of imported goods to consumers hitherto unreachable by the printed word."

He gives the facilities, method of financing, and type of programs sponsored by stations throughout the world.

The last chapter of the book deals with television. It is written by Wilson N. Durham, vice president, Durham and Co., and vice president, Radio Productions Corp.

"Television is here," Mr. Durham asserts. "It has advanced far beyond the stage in which radio broadcasting first became popular, but there are still many factors retarding its development." These factors, which he lists, all have to do with further technical development.

From Readers

Service Man's Views

Gordon & Melick
780 Wright Ave., Camden, N. J.
Oct. 18, 1932.

Editor:

I have just been reading over the Oct. 12 issue of the NEWS and as always have found some articles that interest me. I have long felt that the oil burner and refrigeration business should travel hand in hand, more particularly from a service standpoint which naturally interests me most.

While we are, at first hand, a refrigeration service organization we have done some oil burner work and feel that we could get more of it if we went after it. We would like to get, if such a thing is published, a book on oil burner installation and service. Do you know of any such book or books? We will appreciate any information you can give us about this.

Let us take this opportunity of thanking you for the courtesy shown us by publishing the notice of our organization in your last issue of the Engineering Section.

EDWIN W. MELICK

Latest Developments

Fogel Refrigerator Co.
519-528 Bainbridge St., Philadelphia
Nov. 17, 1932

Editor:

The REFRIGERATED FOOD NEWS and the ELECTRIC REFRIGERATION NEWS have been a great help to us in keeping up with the latest news in developments of electric refrigeration, and are worth many times the small cost of the subscription.

ALBERT FOGEL
Sales manager.

KLEIN TELLS DEALERS TO GO AFTER BUSINESS

WASHINGTON, D. C.—Calling upon the retailers of the country to display aggressive business-getting tactics, Dr. Julius Klein, assistant secretary of commerce, recently told a radio audience that every retailer "has got to fish for business."

Speaking through the facilities of the Columbia Broadcasting System, Dr. Klein asserted that successful business in the retail field now as seldom before calls for thorough familiarity with all new developments and data, as well as information on the expanding science of retailing.

He urged that accurate accounting be used that advertising be planned to carry the maximum of inducements, and that store display and salesmanship be analyzed to determine whether the full benefit and purpose is being attained.

Defines Aggressive Retailing

Dr. Klein defined aggressive retailing as largely the development and utilization of new ideas. To gain the most of the practical benefits from these, he said that store managements should turn more to their staff of employes, a means that serves both to increase and improve store spirit.

"The conclusion that greater aggressiveness is needed in retail selling is supported by the results of a recent special study made in 200 stores of all kinds —big and little—in all sections of the country," stated Dr. Klein.

"Only 8 per cent of the clerks in these stores made any effort to sell something other than the article the customer requested. A larger proportion of the salespeople were adjudged to show a sufficient assortment of the merchandise on request—but even these were seen as failing to display a large enough price range.

Thinks About Advertising

"Every aggressive retailer will give a vast amount of thought to the advertising of his wares. Shrewd, forceful, truthful, persistent advertising is especially necessary at this time. I recommend to you the suggestions recently made by the National Retail Dry Goods Association for the improvement of advertising in this field.

"One of the principles advanced is that so-called 'high pressure' advertising needs to be cleaned up; aggressiveness in retailing does not imply a brazen and clamorous insistence which only wearies and irritates the prospective buyer; persuasiveness can find expression in more moderate and gracious methods.

"It is unwise to limit advertising to low-priced items, or to concentrate on them too much; well-conceived copy should be designed to appeal to each class of customer, and to raise the amount of the average sale.

Keep Careful Accounts

"Another vital policy—well recognized but still none too widely followed is to keep careful accounts, not only for the whole store but for each department. If any department is slipping, it should be analyzed courageously, especially as to whether some particular kind of advertising will increase its volume and profit.

"In many cases which I have personally noticed, the window displays and interior displays of the store might well receive much more attention to enhance their artistic and dynamic qualities.

"True showmanship is something for which the retailer should strive; it can be manifested through contests, lectures, fashion shows, unusual but sensible stunts,' a touch of the bizarre in the presentation of merchandise.

"Much more time, I am convinced, should be devoted to the conception of clever new ideas. Most retail copy needs more human interest—more of the intimate touch—more wit and quaint treatment to rivet attention and gain favor.

"The aggressive retailer will diligently make himself master of all the new developments and data in the expanding science of retailing—all the most recent facts and principles with respect to store-arrangement, buying power indexes, credit problems, analyses of costs and operations, reasons for bankruptcies, and the numerous other vital factors which bear upon success or failure.

"Only through the steady use of these widely-varied tools, facilities, and agencies can he attain the commercial ends at which his progressive spirit aims."

G. E. 'STORE WITHIN A STORE' OPENS IN SCHENECTADY

SCHENECTADY, N. Y.—The Wallace Co. department store here, has installed a General Electric "store within a store" which was formally opened last week. Newspaper advertisements stating "Bring the family to view the model kitchen in the little Spanish house," "Come in and see how household tasks are made easy with G. E. appliances," featured the formal opening. Six columns of the department store's eight-column advertisement were devoted to General Electric appliances including the Monitor Top and Junior refrigerators, the Hotpoint range, washing machine, ironer, vacuum cleaner, and numerous small appliances.

What A Norge Dealer Thinks

Opinion of George Hartzell, Minneapolis, As Told To Staff Writer

By Elston D. Herron

MINNEAPOLIS — George Hartzell, Norge dealer here, says that large refrigerator manufacturers need marked improvements in their products—not reduced prices—to impede sales by manufacturers of "price" units.

"General conditions within the industry will improve when some new and substantial improvements are made in electric refrigerators to attract new buyers," is his way of stating it.

"Yet, large manufacturers have effected price cuts which will so reduce their incomes that development of these improvements will be hindered—with a resultant postponement of the industry's return to stability and prosperity," he says.

He adds, "Electric refrigeration can stand a lot of improvement, even today. It is this improvement that large companies need to fight fly-by-nights, not low prices."

Dealer Hartzell is also of the opinion that major companies have lost prestige because of their price-cutting. He says:

"Big refrigerator manufacturers have had a lot of respect from the public. Now they are cutting prices and lowering their quality standards, and they are going to lose their prestige."

The public still prefers quality to low price, Mr. Hartzell thinks, and would have been glad to pay higher prices for good merchandise, with a knowledge that a part of the money was being spent for features developed only at great expense—features unobtainable in cheap units.

Other of this dealer's remarks are these:

"The buyer's confidence was shaken by suddenly lowered prices on products of large manufacturers.

"Number of sales gained by dealers through reduced prices isn't sufficient to compensate for the shorter profits on sales of cheap units.

"Lowered prices and cheapened quality have put large manufacturers in a class with the gyps."

In answer to a question as to how he competes with chiselers and dealers handling low-priced refrigerators, Mr. Hartzell says, "I can fight sales of 'unknown' makes by talking quality. But when I'm talking to a prospect who is about to buy a low-priced job of another large manufacturer, I have to cut my price."

Another of the dealer's opinions is that manufacturers should supply every dealer with specifications, and results of tests made at the factory, on every nationally distributed make of refrigerator in the country. He says such information would be invaluable as a sales tool.

Large manufacturers should continue to do a large volume of national advertising, Mr. Hartzell says, and dealers should be encouraged by distributors to do more local advertising.

On the matter of advertising, however, this dealer has one complaint to make:

"If a dealer's sales volume is large, he should not be compelled to match the distributor's or factory's contribution for advertising in his (the dealer's) locality with a similar sum.

"The chances are that the dealer with a large volume is already making many refrigerator sales through attention attracted by advertising of his other lines. He shouldn't have to spend still more for advertising only partially paid for by the factory or distributor," he says.

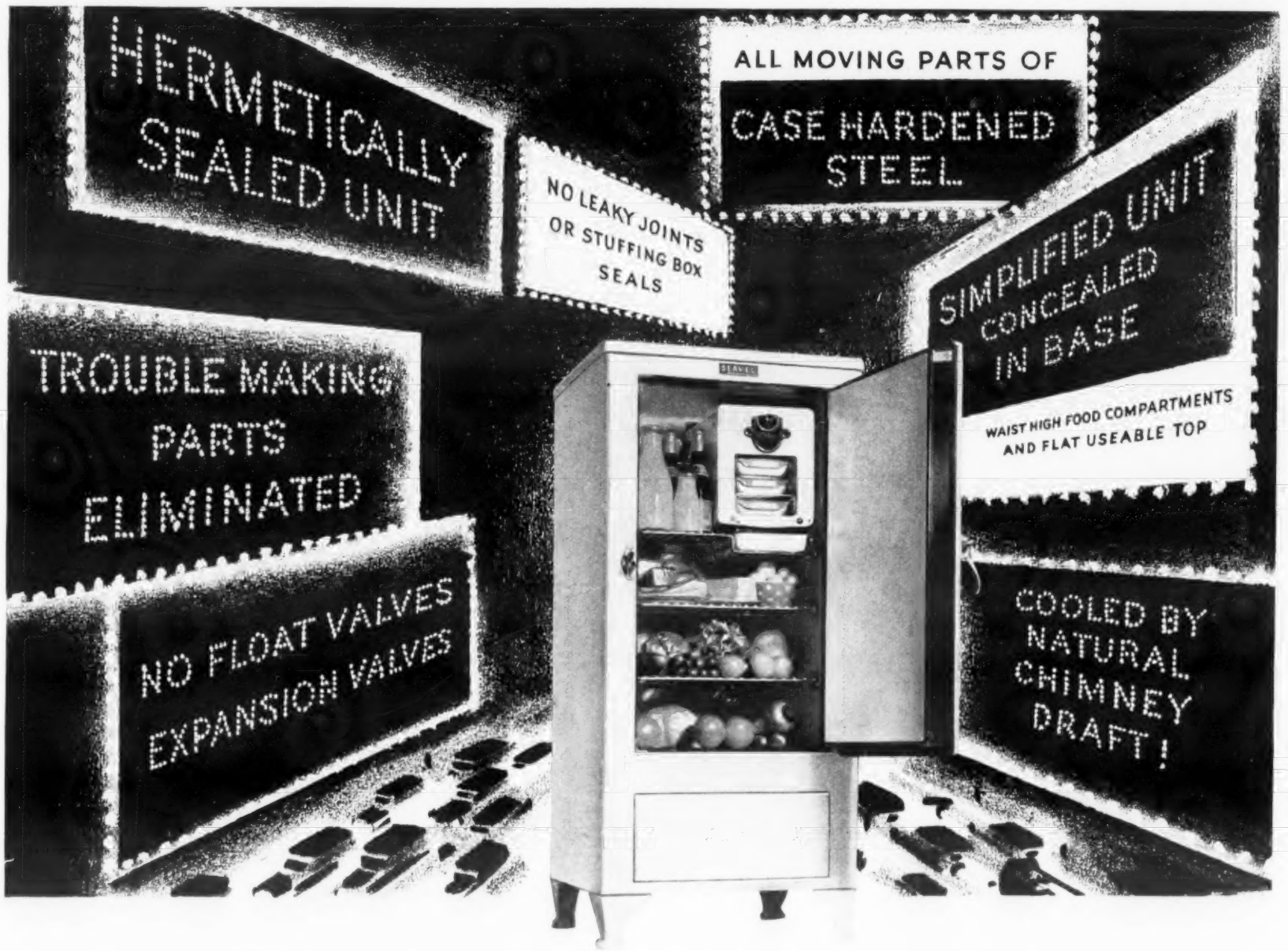
And the dealer whose annual sales volume is large should receive from his distributor a greater proportion of financial aid on advertising expenditures than should the dealer whose sales volume is low, this dealer thinks.

DAVENPORT DISTRIBUTOR DISPLAYS AT SCHOOL

DAVENPORT, Iowa—Mueller Lumber Co., Kelvinator distributor of this city, recently took part in a four-day cooking school sponsored by local newspapers, providing Kelvinator equipment for the school, and giving away a Kelvinator as a grand prize, according to M. W. Andresen of the distributorship.

The school was held in a theater which seats 1,235 persons. For the four-day session, from 500 to 1,000 persons were turned away each day, states Andresen.

In order to win the Kelvinator, the persons attending the school were obliged to register, and the distributorship received over 4,000 names.


HERMETICALLY SEALED UNIT
NO LEAKY JOINTS OR STUFFING BOX SEALS
ALL MOVING PARTS OF CASE HARDENED STEEL
SIMPLIFIED UNIT CONCEALED IN BASE
WAIST HIGH FOOD COMPARTMENTS AND FLAT USEABLE TOP
TROUBLE MAKING PARTS ELIMINATED
NO FLOAT VALVES EXPANSION VALVES
COOLED BY NATURAL CHIMNEY DRAFT!

The Great White Way of
REFRIGERATOR PROGRESS

Look at these features! *All* electric refrigerators will have them eventually. But today only Servel offers this combination of outstanding and obvious improvements! Its simplified refrigerating unit is an engineering masterpiece, years ahead of any other.

You know what mechanical superiority means—to you as a dealer! You realize that no other electric refrigerator gives you such complete protection from costly kitchen repairs.

Your time and your energy is spent on sales—where it belongs. These clean-cut, practical points give you the strongest selling story—give you a constantly growing number of permanently satisfied customers.

For the next five years, the Servel Hermetic promises you the greatest and surest opportunity in the entire field.

Now is the time to get started. WRITE TODAY for full details of our attractive Dealer Plan.

SERVEL SALES, INC., Evansville, Ind.

SERVEL
HERMETIC
Simplified Refrigeration

LITTLE STORIES OF INTERESTING PEOPLE IN THE REFRIGERATION INDUSTRY

THE EXPANSION VALVE

LITTLE STORIES OF INTERESTING IDEAS IN THE REFRIGERATION INDUSTRY

By George F. Taubeneck

Don Compton Parle Francais

A number of interesting things happened to us last week in Chicago—including a highly enlightening chat with Bill Grunow—but nothing we saw or heard gave us such a bang as a stunt of Don Compton's.

Don, as you know, is vice president and general manager of the Grigsby-Grunow Co.

Once upon a time in this kolyum we characterized him as a "fatherly, middle-aged man." He took good-humored exception to that characterization; and we don't blame him—for he's a YOUNG man in almost every respect. This stunt which so impressed us is a case in point.

When the little stunt took place, both of us were sitting on the floor of his office, examining a new, compact model of the Majestic auto radio (several thousands of which have recently been shipped to Henry Ford). This model could be hidden in the pocket of a Burberry greatcoat, and has an aerial about the size of a starved garter snake.

His secretary—a dark, sober girl—slipped into the office unobtrusively, and in a low voice uttered a swift monologue in French. Soon the monologue became a dialogue, with Don easily carrying his share of the French confabulation. And then, as suddenly as she had appeared, the secretary faded out of the office.

At first we thought it a highly original manner of conducting a conversation in re private company business in the presence of an outsider, particularly a "gentleman (the term is generally used derisively) of the press."

And we chuckled to ourself, because we understand French, too!

Mais non. 'Twas not the reason at all. It seems that Mr. Compton wants to keep on speaking terms with the French language, and that he hired a secretary whose facility with that tongue is fluent, so that he might converse with her regularly in *lingua Franca*. (That, dear reader in Oskaloosa, is not French, but Latin. We double-in-brass in gangsterese, too, and you should hear our southern accent!)

He dictates to her in French, she takes the dictation in French, and transcribes it in English.

Let the holier-than-thou intellectuals, who persist in believing that American business men are unlettered money-grubbers, ponder the tale of Don Compton and his French dictation.

We hereby submit it as Exhibit A in our defense of the cause.

* * *

The Bible Says:

Unlike many refrigeration executives, Mr. Compton did not plead with the Valve to exert editorial pressure on the industry in the hope of raising prices.

The Bible makes much of a statement to the effect that it is unwise to "kick against the pricks." That is Mr. Compton's theory, exactly.

It's his notion that one shouldn't attempt to stem the tide of public desire. Rather, one should harness it and convert its force into profits.

If the times call for lower prices, all energy should be concentrated on the task of reducing costs so that lower prices can be offered on a profitable basis, rather than wasting it by hurling vain imprecations into the air, and attempting to fight public sentiment with oratory.

"Give the public what it wants," mottoes Mr. Compton, "if you can!"

In the humble opinion of your correspondent, Mr. Compton's thinking on this subject holds water.

* * *

John Ditzell Grows; Mr. Grigsby Rejoices

Two extraordinarily happy men we encountered at the Majestic plant last week were John Ditzell, who has just been promoted to the post of assistant vice president in charge of the refrigeration division, and B. J. Grigsby, president and chairman of the board.

As recorded on page one of this issue, Mr. Ditzell's appointment carries with it autonomous authority over the refrigeration department. He is now the Head Man on Majestic refrigerators, not just the sales manager.

Bill Pierce, whom Nema executives will remember as the Majestic representative at many of their meetings, is now in active charge of the Majestic radio division. R. C. Rolfing now has chief responsibility for production.

Mr. Grigsby, we found, is highly elated over the recent consent decree which forces General Electric and Westinghouse to dispose of their holdings in the Radio Corp. of America.

Majestic's head has been the leading instigator in this "trust-busting" fight against RCA, and has been spending much time in Washington on this case during the last three years.

In Kansas City is pending a $30,000,000 damage suit, Grigsby-Grunow vs. RCA, concerning the outcome of which Mr. Grigsby feels pretty good.

* * *

Another Idea

Majestic's tireless refrigeration sales division, still hard at work on sales promotion among its 1,000 master dealers, has just issued to these top-notch retailers a new booklet entitled "Another Idea," in which are outlined details for a series of window displays to attract winter buyers.

"Another Idea" augments promotion plans contained in the voluminous sheaf of sales suggestions given these selected dealers last fall when the Master Dealer Plan went into effect (Expansion Valve, Sept. 21).

It carries out the company's plan of concentrating promotional efforts on this group.

The booklet suggests that each master dealer offer use of his show window for one week to prominent manufacturing companies in the city, to bring public attention to their products, processes, and prospects for future progress.

Display privileges should be extended to a new manufacturer each week, says the brief, and window placards should be used to announce that the exhibits are sponsored to prove that the community is stable and progressive.

At the background of each display, of course, the master dealer should place one or two Majestic models, topped by other placards declaring that "Majestic is this city's refrigerator of the future."

Says the booklet: "A constantly changing window display of the type outlined gains the goodwill of the public, the displayer, and his employes.

"And incidentally, during the particular week when a certain manufacturer is displaying, his employes should be circularized, told of the display, and invited to look at Majestic products.

"If a display of this type is well done, it will not only get attention from passersby, but will also cause a great deal of comment in the community. And if we get the public talking about Majestic, our job is much easier."

Master dealers are also urged to avail themselves of the opportunity offered by many newspaper publishing companies which permit advertisers to display their products in the publishers' merchandising windows.

Other pages of "Another Idea" bring the dealer's attention to the constant variations in winter temperatures, and urge him to make use of this fact in sales presentations during the winter months.

Further suggestions are these:

"Have you ever thought that the person to whom you cannot sell a radio might be a prospect for a Majestic refrigerator, Have you ever considered that the people who have just returned from vacations probably decided not to buy an electric refrigerator this spring because they were going on these vacations?

"Remember, the refrigeration business stops only when you stop working at it, because the kitchen knows no season."

In another promotional booklet just issued to Majestic dealers, suggestions and details for holding a theater contest are given—a contest similar to those which have been held in multitudinous numbers by refrigeration dealers in many cities this year.

* * *

O. K., Muskegon!

In an editorial commending the nation-wide Share-the-Work movement now under way with Standard Oil's Walter C. Teagle as its leader, *Saturday Evening Post* makes mention of the fact that while no city, state, or industry has attempted to grab the lion's share of credit for the movement's progress, Muskegon, Mich., home of the Norge cabinet plant, is undoubtedly leading all other cities in this work.

Herb Morley, manager of the Norge Muskegon factory, declares that his plant has been one of the leaders in the movement.

* * *

Ratner Makes a Trade

Herbert Ratner, Westinghouse salesman for the Greensburg Motor Co. of Greensburg, Pa., now has a small but personal interest in the live stock business. He has a cow for sale.

While canvassing some of his rural territory recently for milk cooler prospects, Salesman Ratner called on a farmer whose family had been ill from effects of eating poorly preserved food.

Seeing a chance to sell a Westinghouse refrigerator, the salesman launched into a discussion of food preservation, and made such a forceful presentation that the farmer admitted he would buy immediately if he had the money.

"But I can't raise the money unless I can sell one of my cows," he said.

The salesman finally arranged to install an AL-73 immediately, with the understanding that he would take the cow as initial payment for the refrigerator, provided the farmer could not sell the beast within two weeks.

The farmer was unsuccessful in making a sale.

Now, because he thinks the $40 offered for the cow by the local butcher isn't half enough for such a fine animal, Salesman Ratner is running a newspaper advertisement which reads:

For Sale: One Swiss Guernsey cow with large brown eyes, weighing 1050 lbs., and giving five to six gals. of milk per day, 5.3 butter fat test. Address Herbert Ratner, c/o the Greensburg Motor Co., Greensburg, Pa.

* * *

Advertising Wedge

A. M. Taylor, merchandising director for the Leonard Refrigerator Co., has a favorite method of interpreting to dealers a set-up of advertising and sales promotion as it applies to specialty selling, which takes much of the mystery out of the proposition.

Mr. Taylor's "Advertising Wedge" is known to Leonard dealers from coast-to-coast.

In broaching the subject, the dealer's territory is likened to a log of sales resistance, which must be split to get at the sales and profits concealed within it.

Going back to days on the farm, Taylor draws a lesson from the fact that a heavy wedge was used in log splitting. The wedge had certain characteristics—weight, or "heft" as they called it in the country, and a smooth contour drawing down to a keen edge.

"Let us construct such a wedge and split this log of sales resistance," says Mr. Taylor, and he gets busy with a piece of chalk on a blackboard, being careful to explain what he is going to draw, so that it will be recognizable (inasmuch, he says, as the only thing he can draw at all well is a check—and only then if it is a very small one!)

At the base of the wedge, to give it weight, he places national magazine advertising. This advertising is general in its nature, devoted wholly to the merits of the product and the name of the manufacturer. It provides no identification for the sales outlets.

To amplify it further and at the same time to provide identification, he lists newspaper and poster advertising, over the dealers name, as the next section.

The third section is known as "identification." Signs, window displays, window transfers, etc., at the dealer's place of business—advertising at the point of sale—tying up with all the previous forms mentioned.

These foregoing forms Mr. Taylor calls "shot gun" advertising. The messages are hurled at a great number of people with the idea that they will reach some who can be interested and eventually sold.

At this point the "shot gun" of general advertising is laid aside, and the "rifle shot" method—direct mail—is taken up. It makes up the next section.

Here the individual prospect is singled out and a definite message sent direct to him, using Uncle Sam's services, to pave the way for the salesman—doing some pre-selling, laying a foundation upon which the salesman may work.

"Instead of direct mail, I prefer to call this 'door opening' advertising," says Mr. Taylor, "and those who use the method properly will find that it saves much time for the salesman—it expedites his work, and therefore increases results for the dealer.

"It is common knowledge that more skill is required to use a rifle effectively than is necessary in the case of the shot gun.

"Two fundamental things are absolutely necessary for the accurate and economical use of direct mail. One, a careful selection of the proper list of names. Two, the close personal follow-up that must be put behind these door opening messages if best results are to be obtained.

"Direct mail, properly used, is one of the most powerful weapons as an aid to sales that is available, and beyond that it is the greatest source of control and guidance over salesmen that any sales manager can have. For, with a properly selected list, and mailings going out at designated intervals, the sales manager is always in position to hand the salesman, each day, a definite number of names of people to whom Leonard advertising has been mailed, thus guiding the salesman's effort intelligently and conserving his time.

"It affords a source of control, because the sales manager can require definite reports from the salesmen each night. To make such reports intelligently, they must of necessity make the necessary contacts.

"Your salesmen need guidance and control," says Mr. Taylor. "The man who does not need it, doesn't remain a salesman. He becomes a sales manager, a dealer, or a distributor. Our company offers a complete suggested system for the proper handling of a direct mail campaign."

The wedge has now been constructed down to the section known as the "point" and that section is a keen, well-trained, hard-hitting, sales force.

"Just for a moment," says Taylor, "visualize this wedge without a point. You have the necessary weight; but without the point, no ability to penetrate.

"On the other hand, visualize the point alone without the weight of the advertising behind it, and you will realize that it has much less ability to penetrate than would otherwise be the case.

"Advertising is paradoxical in its nature.

"While it goes ahead of the salesman, it also comes behind him. When he approaches a prospect, he has behind him the weight of all dollars that have been spent in various forms of advertising.

"In specialty selling, unless the point is right, the weight of the advertising is to a large degree ineffective."

Having built up this wedge from base to point, and emphasized the necessity of each different section, if this tool for splitting the log of sales resistance is to have the greatest effectivness, he goes back over the wedge and places in each section the various media his company is providing entirely, or sharing with distributors, from the standpoint of expense.

Mr. Taylor has been pictorializing thusly the story of advertising for some time. Its effectiveness is almost 100 per cent predictable—it always hits the bullseye in a sales meeting. As Hendrik Willem Van Loon says:

"One thing these 50 years among the human race have taught me is this: that man can live without bread and without butter and without jam, but that he cannot live without his fairy stories."

If any Valve reader knows another industry "fairy story" which has obtained good results, we'd be pleased to receive it.

* * *

Social Jottings

Mad social whirl of the refrigeration industry continues apace. Since last we recorded its dizzy convolutions the Valve has spent pleasant evenings with:

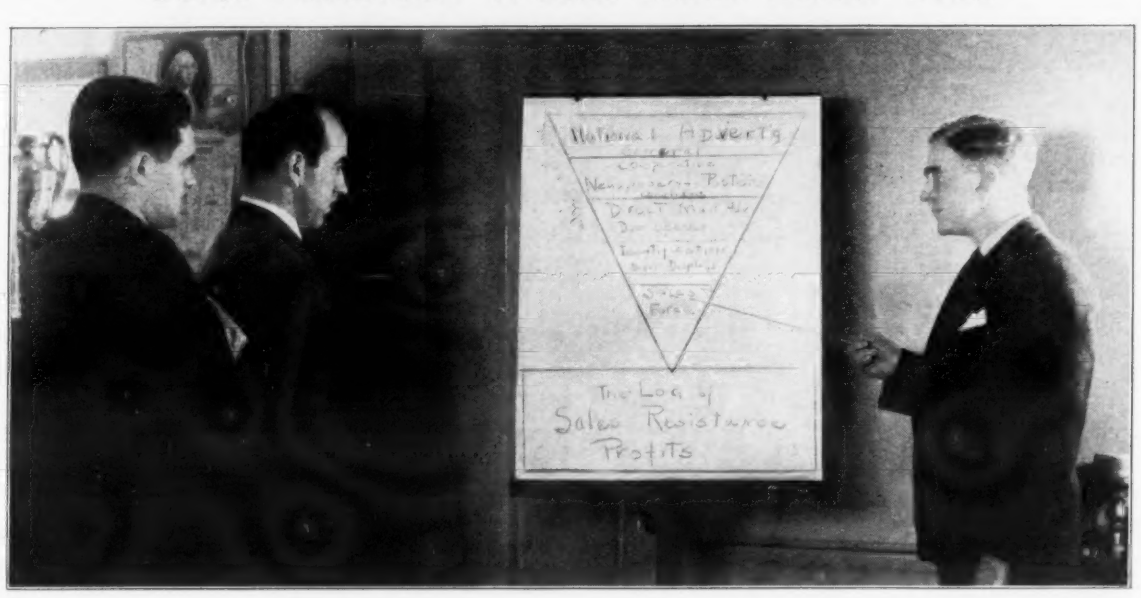
C. J. Swan and Irving Knudson of Detroit Lubricator Co., who supply expansion valves (not this kolyum, yunnerstand, but the mechanical variety) and commercial controls to the industry. Jack Schaefer was along, too, and we learned a highly diverting new game called "ninety-nine." Further details may be had on receipt of self-addressed, stamped envelope.

W. T. Rasch, president of American Gas Products Corp., and again the delightful Mr. Swan. Mr. Rasch claims that he trained Nils Sellman of Consolidated Gas Co. of New York City (chief purveyor of Electrolux gas refrigerators), and a brother of F. E. Sellman, who is vice president in charge of sales for both Electrolux Refrigerator Sales, Inc., and Servel Sales, Inc.

W. D. McElhinny, vice president in charge of sales of Copeland Products, Inc., and his young and charming wife. The gorgeous Greta was on this party, and she and Mac fell to reminiscing of the 1930 Copeland convention (the only Copeland gathering the Valve has missed in the last three years), at which *both* had made speeches. Mac also recalled our modest little clean-up at a Canadian race track last summer, and wants it stated that our winnings were counted in terms of dollars, and not thousands—as some of his distributors had actually suspected. Others bumped into during the evening included St. John Brenon, crack Maxon copy writer, amiable Mayor Frank Murphy of Detroit, famed trumpeter Henry Busse, and slick George Raft of the cinema.

Martin Janasik, Kelvinator engineer and formerly of the Frigidaire engineering department, and his pretty wife. The latter used to be Frigidaire Engineer Robillard's private secretary.

John Patterson Would Have Liked This



A. M. Taylor, Leonard merchandising director, demonstrates his "advertising wedge" theory (note story below).

He Got the Bess Of the Deal

Herbert Ratner and Bess.

Czechoslovakian Restrictions May Halt Importation of Refrigerators

By Don C. Bliss, Commercial Attache

PRAGUE, Czechoslovakia—Up to the middle of 1927, electric refrigerators were practically unknown in this country. Only ordinary types of ice boxes were used in households, restaurants, and butcher, delicatessen, or grocer shops, with the exception of large enterprises which had their own refrigerating plants. Butchers and restaurant owners usually filled their cellars with natural ice during the winter time, and this supply was generally sufficient to cover their needs throughout the year.

Most of the Czechoslovak breweries also stored natural ice in winter and supplied it gratis to their customers when they ran short of ice due to exceptionally long and warm summers.

The use of ice boxes in households was limited, as it is not the custom in Czechoslovakia to buy supplies of raw foodstuffs for more than one day, and as the climate, with exception of two summer months, is comparatively cool.

In case of necessity there was always the opportunity to have food stored in the cellar of the nearest restaurant for a small consideration or even without charge.

In the summer of 1927, Frigidaire, an American household electric refrigerator, was introduced on the market. Due to extensive propaganda and advertising in daily papers, sales soon picked up in spite of the comparatively high retail prices quoted at that time.

The first to see the big advantage of an automatic electric refrigerator over the old type of ice box were the owners of delicatessen stores, and in about one year all such stores of importance in Prague were equipped with American electric refrigerators.

The second make to enter the local market has been the Swedish "Elektrolux." This make had the advantage of being marketed under an already well known name, as the company had been in the market for several years with their "Elektrolux" vacuum cleaner, the best sold cleaner in Czechoslovakia.

Sales of this make attained considerable proportions in the beginning but later on were considerably affected by the competition of low-priced German products.

Other American and German makes followed the two above-mentioned, but their sales remained limited, largely due to the inability of local importers to invest sufficiently large amounts of money in propaganda and advertising.

Domestic Production

At the end of 1929 several domestic firms started to assemble electric automatic refrigerators from parts imported mostly from Germany.

This assembling developed in time into manufacturing, and at present not less than 11 local factories turn out electric refrigerators. While in the beginning they were depending on a number of imported parts, at present only automatic switches and thermostats are being imported. The rest of the parts are made either in their own plants or are bought from other local manufacturers.

In the beginning rather crude jobs were turned out. However, domestic production has shown a constant improvement; and at present, locally made refrigerators are equal in appearance and performance to those imported from abroad, with the exception of the American makes, which are considered to be better designed and more economical in operation.

Almost 5,000 Refrigerators in Use

Within the five years since the introduction of the first electric refrigerator in Czechoslovakia, almost 5,000 units have been sold.

Most of these units in use are of American origin. Second place is taken by the "Elektrolux" which is followed by local and German makes.

Estimated total sales of the more important makes are shown in the following table:

Make	Country of Origin	Number of Units Sold
Frigidaire	American	2,100
Elektrolux	Swedish	1,300
Klan	Local	250
Horn	Local	180
Kelvinator	American	140
Mra	Local	110
Ate	German	100
EKV	German	85
Vzer	Local	60
Skal ky	Local	50
Sla	Local	50
Prag	Local	50
Aljaska	Local	40
Kall a	Local	35
Total		4,550

American refrigerators account for 49 per cent of these sales.

Only about 25 per cent of all refrigerators now used in Czechoslovakia are installed in households. This comparative small percentage is largely due to the fact that prices of refrigerators are still high and only wealthy people can afford to buy them.

The lowest retail price is quoted for the local "Aljaska" make which costs 3,500 crowns ($105)—an amount which represents the cost of two months' living for an average family.

Household types of refrigerators are mostly used by delicatessen stores, butcher shops, and grocery stores. Larger or combined units are installed to some extent in restaurants (especially for beer counters) and in hospitals, and they are also used by confectioners for ice cream making.

Import Restrictions

The reason for the high retail prices quoted at the beginning for imported refrigerators was the comparatively high rate of duty assessed on cabinets. The duty on metal cabinets amounts to about $90 per 100 kg., while the electrical and mechanical parts, when imported separately, pay lower rates averaging about $15 for a small unit.

In view of the high duty on cabinets, all of the representatives of foreign makes started to import the refrigerating units only, making or having the cabinets made locally.

Up to Jan. 18, 1932, imports of electric refrigerating units were not hampered by restrictions. However, on that date, electric motors were put on the list of commodities payments for which are subject to a special permit from the Czechoslovak National Bank; and importers of refrigerators, being constantly refused the granting of such permits, were compelled to install locally made motors.

This, of course, affected their business considerably, as locally made fractional horsepower motors are rather unreliable.

Most of the refrigerators are sold under a two-year guarantee of reliable operation and repairs necessary due to the low quality of locally made motors, being free of charge within the time of guarantee, cut considerably into the profits of importers.

The importers had scarcely adjusted themselves to the new situation, when on Aug. 12, 1932, the necessity to secure permits for payments abroad was extended to the whole units or their parts.

This was largely due to the fact that, at the beginning of August of this year, when local manufacturers of refrigerating equipment formed a separate section of the Czechoslovak Manufacturers Association, they immediately approached the government with the request that payment permits for electric refrigerators be introduced and the granting of them refused on the ground that domestic production is more than sufficient to cover the present demand.

Efforts of the importers to secure payment permits are at the present time only partly successful. The authorities are cutting the quantities applied for to a small percentage, and in most cases the granting of permits is simply refused.

Present Situation

In spite of the prevailing business depression, sales of automatic electric refrigerators continue this year to be satisfactory and it is estimated that they will amount to about 1,200 units for the year 1932.

While foreign makes will still participate to the extent of about 70 per cent of the above amount, it is expected that imports will be cut down to nothing at the beginning of the next year and that domestic products will dominate the market. Only parts not manufactured locally, such as thermostats and automatic switches probably will be imported.

Imports of these will represent the only share of American manufacturers on the local market as most thermostats and switches installed in local makes are of American origin, although they are imported under various names indirectly from Germany.

Even in case the present import restrictions are lifted, local makes will continue to be the first on the market, as most of the importers will in the meantime probably be forced to give up their agencies, or will start to manufacture locally under license.

Distributor Tells What A Dealer Should Find About a New Line

OKLAHOMA CITY—Before he takes on an electric refrigerator line, a distributor or dealer should determine that it meets the following requirements:

It must be manufactured by a responsible manufacturer. It must be a proven product. It must have quality and workmanship of the highest standard. It must be reasonably priced. It must bear a good profit for the dealer. It must be a nationally advertised product. It must have eye appeal and performance.

These rules are laid down in the first issue of *Icy Topics*, a four-page bulletin launched by Spurrier's, Inc., of Oklahoma City, Leonard distributor, to acquaint its dealer organization with the 1933 line of Leonard electrics. The bulletin is largely written by J. P. Stewart, vice president and sales manager of Spurrier's, Inc.

FOREIGN DISTRIBUTOR VISITS AT KELVINATOR

DETROIT—"Morocco, a country of 5,200,000 people, with 200,000 Europeans, is a prosperous country," stated Pierre Godquin, formerly of the field sales staff of the Kelvinator Export Division, and now one of the managing directors of Societe Anonyme Elect Ra, Kelvinator distributor at Casablanca, Morocco, who visited the Kelvinator factory here recently.

Mr. Godquin drove his Michigan-made automobile from Morocco to Paris. There he was married to the daughter of a prominent family of Dijon in the Burgundy district, and the honeymooners took ship for America.

"Electric refrigeration is growing in popularity in Morocco," states Godquin. "Our organization is incorporated. Its president is Mrs. Dupont. Ch. Chanoine and myself are the managing directors. We have a staff of more than 30 salesmen, accountants, clerks, mechanics, and service men.

"The principal pursuits of Morocco are farming, manufacturing, and mining, a State-owned industry. Much wheat and barley are grown. Sheep raising is an important industry. Phosphates and molibdenum, the metal combined with steel for use in automobiles and radio tubes, are produced.

Morocco was a wild country 15 years ago. Today, it is a combination of the middle ages and the modern. The roads are fine, the scenery rugged, and many Europeans and Americans tour the country.

KANSAS CITY BRANCH OF FRIGIDAIRE MOVES

KANSAS CITY, Mo.—The Kansas City district office of Frigidaire Corp., established early this year, has moved into new and larger quarters at 2619 McGee St.

Ice Industry Needs All The Advertising That It Can Buy, Association Told

PITTSBURGH—Frank B. Ostermueller of Dallas, Tex., chairman of the National Association of Ice Industries marketing service, stated at the recent convention of the association here that the industry needs all the newspaper advertising that it can buy "to sell the economies and efficiencies of ice refrigeration and ice refrigerators which are modern."

E. A. Brandt, secretary of the association's national technical department, reported that commercial and domestic ice cooling system installations have made a 400 per cent gain. Achievements made through study at the University of Illinois, he said, have improved freezing time by 50 per cent.

Despite a 20 per cent decline in business for its fiscal year just closed, the billion-dollar ice industry has maintained a pace paralleling its 1928 volume, according to Leslie C. Smith, secretary of the association.

Although its volume dropped by one-fifth for the year ending Oct. 1, reduced operating costs enabled the industry to keep its profits from slipping to that extent, states Smith.

The volume of ice sold dropped from approximately 65,000,000 tons in the year ending Oct. 1, 1931,—the largest annual sales ever achieved by the industry—to about 52,000,000 tons in the fiscal year just closed.

About half the slump in volume this last year was attributed to loss in carricing business, resulting from an estimated drop of 40 per cent in the market for perishable products. Normally this market alone accounts for 22 per cent of all ice business.

Commercial icing, on the other hand, has shown almost no decline, according to Smith, but the private market has dropped most noticeably in cities where unemployment has been great.

Sales for the first four months of 1932, Mr. Smith said, were ahead of the same months in 1931, due principally to a warmer winter, but fell off appreciably during summer months which normally bring the most business.

Ice prices, the association has found, showed little tendency to drop until August this year, when a rather general price decline began.

Sales of ice refrigerators, Mr. Smith said, have shown only a slight decline this year. About 300,000 units have been sold thus far in 1932. No ice company which is a listed market organization, he said, has suspended dividend payments.

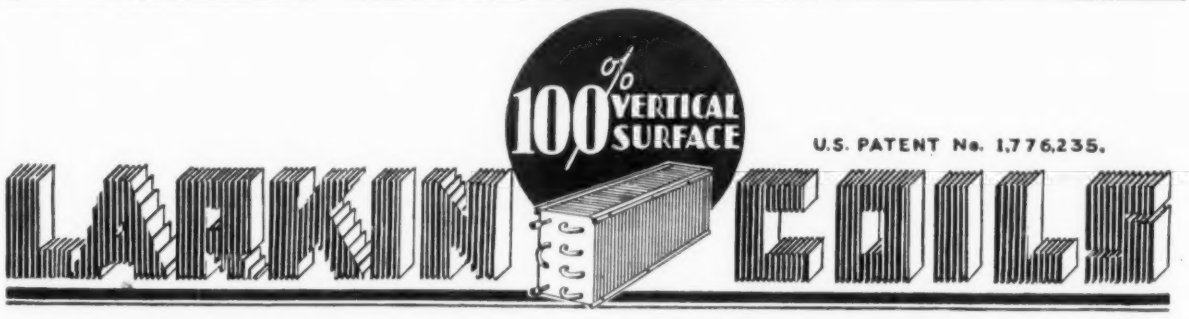
The national association's membership, considered something of a barometer of conditions in the industry, now totals 1,500, compared with the highest in its history, 1,674, in 1928.

Expense Manual Issued By Retail Group

NEW YORK CITY—In an effort to assist stores to determine a net profit figure by departments, an expense distribution manual has been prepared by the Metropolitan Controllers' Association, and adopted by the controllers' congress of the National Retail Dry Goods Association.

It outlines a definite method of distribution of expenses in department stores. Dealing primarily with the problems of "cost finding," one of the main objectives of the report is to determine the manner in which indirect expenses shall be treated so as to reflect in every department a more accurate cost of doing business.

In addition to the manual itself, a chart is included to be used for ready reference to the recommended bases of expense distribution.



Have Lowered the Cost of Refrigeration for More than 35 Thousand Retailers

Eliminate Defrosting and Dehydration Problems with these Efficient Coils

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Originators and Manufacturers
ATLANTA, GA.

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COPELAND : SERVEL : WILLIAMS-ICE-O-MATIC : MAYFLOWER
CARRIER-BRUNSWICK-KROESCHELL : UNIVERSAL : ZEROZONE
KULAIR : M & E : MODERN : PHOENIX : STARR : APEX
MOHAWK : DICELER : H. M. Robins Co.—Export, and Others

News of Companion Electric Appliance Lines

How To Sell Companion Lines

As Practiced By Neuenfeldt and Berggren, St. Paul

By Elston D. Herron

ST. PAUL—If you were to ride out St. Paul's University Ave., several miles from the downtown section, you would see the spic-and-span little salesroom of Neuenfeldt and Berggren, with a Norge refrigerator, an oil burner, and a radio displayed in its windows.

And if you stepped inside, you would be greeted by pretty, 21-year-old Dorothy Neuenfeldt, for two and one-half years the firm's store manager, and floor and outside saleswoman.

If you remarked, "I see you've taken on oil burners to bolster profits from your refrigerator sales," Miss Neuenfeldt would reply, "No. We took on refrigerators to help our oil burner business."

According to Miss Neuenfeldt, her father, Otto W. Neuenfeldt, has been an oil burner and heating equipment dealer for 12 years.

Two Lines of Oil Burners

He handles Kleen Heet and Ke Wa Nee oil burners at the present time. A. W. Berggren conducts an electrical contracting business in connection with the firm's sales activities.

Last year, the dealership began sale of Norge refrigerators and Atwater Kent radio sets to balance the seasonal nature of its oil burner business, and to increase its general income.

Three outside salesmen (in addition to Miss Neuenfeldt) are employed to sell the firm's three-item line. Most of their efforts, however, are applied to oil burner and refrigerator sales.

Approximately three-fourths of the salesmen's time in the fall-and-winter season is spent in selling oil burners, the other fourth being devoted to sales of refrigerators and radios, says the store manager.

Weekly Sales Meetings

Salesmen meet once each week with Mr. Neuenfeldt to plan their activities, and discuss sales problems. At these meetings, Mr. Neuenfeldt gives his salesmen names of prospects which he has secured during what his daughter terms his "prospect-scouting" activities.

All of the dealer's refrigerator service calls are handled by the Minneapolis Norge distributor (Reinhard Bros. Co., Inc.). Oil burner repair and installation service is supplied by three service men stationed at the dealer's salesroom.

Most, and best, oil burner prospects are found by contacting persons who have already bought burners from Neuenfeldt and Berggren, Miss Neuenfeldt states.

Fuel oil salesmen also supply names of good burner prospects, in return for the dealer's recommending their product to burner users.

"And we have found that many of our oil burner users are good refrigerator prospects," she says. "But our best source of refrigerator prospect names is the users of refrigerators bought from us.

"We have found that oil burner users give us more oil burner prospects than refrigerator prospects. And our refrigerator users are better sources of refrigerato prospects than oil burner prospects."

Norge sales are promoted by enclosing, with monthly bills sent to oil burner users, various Norge mailing pieces secured from the distributor.

Several times each year, letters are sent to Twin City plumbing and heating contractors and architects, in which they are offered a commission on oil burner sales made through their recommendations, says Miss Neuenfeldt.

December Is Peak Month

From July to the end of October, most of the firm's efforts are applied on oil burner sales. In the spring and early summer, and during the Christmas buying season, refrigerator and radio sales receive the most attention.

According to Miss Neuenfeldt, the dealership's peak season in refrigerator sales is during the month of December, when refrigerators are being purchased as Christmas gifts. Practically all of the salesmen's time is devoted to Norge sales during that month.

As evidence of the fact that her father believes profits come only from long hours of work, and that no opportunity should be overlooked to sell prospects at "off-hour" times, Miss Neuenfeldt states that the salesroom is kept open from 8 a. m. to 9 p. m., seven days per week.

She says also that the firm's salesmen have been given one order to follow in an effort to compete effectively with low-priced merchandise in the refrigerator, oil burner, and radio fields—"talk quality and advantages to your prospect, not price."

Coal Stokers Coming Thing

Bobbed-haired, high-heeled Miss Neuenfeldt handles all sales to walk-in prospects, and makes occasional outside sales calls. She believes that "coal stokers are the coming thing as companion merchandise to refrigerator lines."

This dealer does considerable newspaper advertising, and is at present participating in Twin City radio advertising campaign being conducted over station WRHM.

Several "spot" announcements of the dealer's oil burners are made each day from the broadcasting station. Each person buying a burner as a result of the radio announcements receives the equivalent of the price paid for the burner in "prosperity money," which may be used later toward the purchase of products (donated by local dealers) "auctioned" by radio.

WHERE Can I Buy It?

Tubing . . . valves . . . fittings . . . service tools . . . testing instruments . . . equipment for special applications. Where can you buy them—or any other product you need quickly? A complete list of manufacturers would answer the question. Such a list is one of the features of the Refrigeration Directory. All known suppliers of refrigeration products, parts, materials and accessories are listed in convenient reference form. And all companies are listed four ways — alphabetically, geographically, by trade names and by product classification.

590 PAGES OF USEFUL INFORMATION

Complete With New 120 Page Supplement

1932 REFRIGERATION DIRECTORY AND MARKET DATA BOOK

Use the Coupon on Page 11 to Send Your Order

FADA RAISES PRICES ON 3 RADIO MODELS

LONG ISLAND CITY, N. Y.—Fada Radio & Electric Corp. here has just announced increases in prices on three leading models in the Fada line.

According to the announcement made by General Manager R. M. Klein, the price increase is on the following models: model 97—old price $73, new price, $79.50; model 74—old price $83.50, new price $87.50; model 76—old price $94, new price $96.

Mr. Klein states that production at the Fada plant was increased 80 per cent the first of October and approximately another 50 per cent during the middle of October.

Mr. Klein, in giving out the announcement about the increase in prices, declared that "we raised our prices:

"Because we were satisfied that the pendulum had swung too far in the direction of low prices.

"Because we believed we had been misled, as had many other concerns, as to the necessity for continually reducing prices in order to promote business.

"Because the obsession for low prices has warped the judgment of the manufacturer, distributor, dealer, and consuming public alike.

"Because it may come within the scope of the dictates of good business to occasionally make a price concession in order to book a substantial order, yet a continuation of such procedure as has in substance been effective for the past two years must eventually lead to an unwarranted business loss.

"Because even at the advanced prices each and every piece of merchandise represents an exceptionally good value and one which the ultimate user is bound to take pride in possessing.

"Because no business cycle can endure without a fair return to each and every participant therein.

"Because radio dealers must welcome an increase in the unit sale, which means if not an increase in profit at least an additional contribution toward overhead.

"Because we find it necessary and desirable to extend certain merchandising assistance to our trade, which assistance cannot be properly extended on the basis of former prices.

"Because we aim to pay a living wage to our help.

"Because we feel it was a desirable contribution to that much desired return to prosperity.

"Because an adequate return against our overhead is essential in order that our business position may be maintained.

"Because an increase in the margin of profit to dealer, distributor, and factory is essential to contribute to the increased spending power which alone can create an improvement in general business conditions.

"Because we feel it is a constructive move in the radio industry, even as it would be a constructive move in practically every other industry.

"Because we hope and expect this initiative on our part will cause serious and careful thought on behalf of our competitors as well as manufacturers in other lines with a view to similar action on their part.

"Because common sense must convince any business man that a continuous battle to secure volume irrespective of margin against overhead must result in detriment to his own business as well as detriment to his industry as a whole.

"Because we were thoroughly satisfied that we were justified in raising prices.

"Because the siren lure of the purchaser with his stereotyped comment that this is an era of low prices—you must adjust your business to the new conditions—the spirit of the times demands better values for less money—has inadvertently caused us to look too much upon volume of accounts receivable rather than volume of dollars left to apply against overhead.

"We raised our prices—we do not regret it—we feel, rather, that we should have done it sooner, and if each and every banker in considering the renewal of a doubtful loan would make the loan to a manufacturer provided the manufacturer agreed to immediately increase his prices, it would go a long way toward achieving the desideratum and would do more to improve general business conditions than could be accomplished by 10 Hoovers, 10 Roosevelts, or 10 adjustments of the foreign debt."

Georgia Power Co. Sells 527 Radios

ATLANTA—A total of 527 General Electric radios were sold in the special sale held by the Georgia Power Co. from Oct. 10 to Nov. 12.

The "outside of Atlanta" territory was the leading factor in the success of the campaign, making 140.6 per cent of quota, as compared to Atlanta's 42.8 per cent of quota made during the period of the sale.

Final Range Lesson Tells How To Find And Analyze New Prospects

(Editor's Note: This is the sixth, and last, of a series of reviews on the six-assignment Electric Cookery Salesmanship instruction course for General Electric Hotpoint range salesmen prepared by LaSalle Corporation Service (division of LaSalle Extension university). This review is based on the sixth assignment, "Securing more Prospects.")

By Elston D. Herron

As the range salesman reads through this, the last assignment book of his instruction course, he will find chiefly three things: suggestions for securing more prospects, an analysis of prospect types, and a set of questions which are a spur and a challenge to his sales ability.

Part one opens with the premise that "every wired home not already equipped with a modern electric range contains a real prospect," then recommends that despite this assumption, the salesman should give his most immediate attention to:

Women who have attended an electric cookery demonstration; special-reason prospects; present electric range users; and community leaders.

Aids In Finding Buyers

Bits of advice given salesmen in finding buyers are these: "Many of your best prospects are those who have witnessed a demonstration of electric cookery. Develop opportunities for demonstrations in homes of Hotpoint users. Arrange salesroom demonstrations."

Especially good prospects, in many instances, are special-reason prospects—new residents furnishing their homes; newly married couples; electric refrigeration users; persons already using large quantities of electric power; etc., says the manual.

It urges salesmen to call on electric range users to get names of good prospects, and says frankly that it is a wise policy to get a line on what competitive companies are doing by calling on users of competitive makes of ranges, by reading competitors' catalogs.

Territory-Working Plan

An eight-point territory-working plan is suggested for the salesman, to save his time and increase his returns. Here it is:

1. As soon as possible after an electric cookery demonstration, call on the people who have attended it.
2. Create more prospects by giving demonstrations yourself in users' homes, at your dealership, etc.
3. Get flying starts by calling on people about whom you have special information.
4. Call on and sell as many as possible of those who are leaders of one kind or another in your territory.
5. Then concentrate on selling their friends and neighbors, and in turn, *their* friends.
6. Call on electric range users. Get permission to use their names as references.
7. Don't scatter your calls more than necessary.
8. Develop several kinds of approaches adapted to the main kinds of situations you will meet in making first calls.

Pre-Approach Work

Every range salesman has a definite part to play in pre-approach work, the book asserts. He should assist his company in making lists of good prospects, by compiling mailing lists, by keeping prospect files up to date. He should supply ideas for letters, advertisements, store displays, and demonstrations.

He should see that all sales promotional literature available has distribution in his own territory, and he should follow promptly, with personal calls, all good leads developed through pre-approach activities.

Before making any call, the salesman should know of his prospect: the type of range she now uses; her husband's occupation and approximate income; number of persons in the family; approximate ages of children; whether home is rented or owned; type of neighborhood in which home is located; whether maid or cook is employed; whether other electrical appliances are used.

First Seconds Count

As regards the approach—the salesman's first call on a prospect, the assignment book declares that "the first few seconds count most." Everything about the salesman must be pleasing to the prospect during the first moments of the interview, or the chances of making a sale are few, it states further.

The book suggests this: "Memorize your approach so that you can keep on talking long enough to catch Mrs. Homemaker's real interest in electric cookery."

If the prospect is busy, make an appointment for another interview. If she says she hasn't the money to buy a range now, impress upon her immediately that electric cookery is a money-saver, not a luxury. When the prospect refuses to admit you because you are a stranger, make an appointment to talk to both her and her husband, the instruction book continues.

In turning objections into favorable commitments, there are three steps which must be followed. First, analyze it. Find whether it is genuine or is a stall. Find in what buying decisions the prospect is lacking; then build up that decision, is the assignment's advice.

Second, overcome the objection. And to do this, you must be tactful, sincere, sympathetic, and helpful. Answer every objection, and, third, get a commitment—a favorable one.

Here is the "objection rule" prepared by LaSalle writers: "The objection is your red 'stop' light, the commitment your green 'go' light. Don't leave the point . . . until you have changed the 'stop' signal to 'go' by gaining the commitment."

Advice to Salesmen

Part 4 of the last assignment is a hard-hitting message to salesmen on the subject of hard work and lots of it. Make every minute count—and pay, is its advice.

In less than a page of this entire section, there are presented for the salesman's consideration some questions, which, if he answers them truthfully, will give him a crystal-clear look at himself as a salesman; and will, if he is conscientious, make him a better salesman than he was before.

Here they are:

"Are you . . . getting to work on time?

"Are you planning each day's work the night before?

"Do you know how many calls you have to make to get an order?

"Do you know how many new prospects you have to find to produce one whom you can close?

"Are you demonstrating to every new prospect?

"What percentage of demonstrations are you able to close?

"Can you tell such an interesting story that prospects are glad to give you their time?

"Is your enthusiasm so contagious that your prospects are eager to hear the whole G. E. Hotpoint story?"

Closing the last assignment is a series of questions designed to "brush up" the salesman on the high spots of the entire course.

Oil-O-Matics Used In Historical Places

BLOOMINGTON, Ill.—Williams Oil-O-Matic "hushed heat" is installed in many of the country's best-known historical shrines, according to a report made recently by officials of the Williams Oil-O-Matic Heating Corp.

Numerous Washington landmarks are heated by Williams oil burning equipment. These include Wakefield Mansion, Virginia, where, in 1732, Washington was born; Kenmore, the Fredericksburg, Va., mansion which Col. Fielding Lewis, in 1750, built for his bride, Washington's only sister; Woodlawn, the mansion at Accotink, Va., George Washington's gift to Eleanor Parke Custis, daughter of his wife's son by her first marriage; and the white masonry building at Valley Forge, Pa., selected as Lord Stirling's headquarters when encamped with Washington.

Other historical shrines using Williams Oil-O-Matic heat are the Lincoln Memorial at Springfield, Ill.; the Ulster County Courthouse at Kingston, N. Y., and the Bennington Historical Museum at Bennington, Vt.

Chinaware Appliances Made By Westinghouse

MANSFIELD, Ohio — Westinghouse engineers have recently been successful in adopting the use of chinaware for electrical appliances, and a number of chinaware base appliances have been announced in the new Westinghouse line.

Prominent in this new line is the china base waffle iron. The heat from the iron element will not crack the selected china.

The base is decorated with a floral design on a cream colored background. The china handles are molded with the base and the top of the waffle iron is attractively decorated with all of the exposed metal parts finished in tarnish-resisting chrome plate.

The china handles are molded with the base and the top casing of the iron is chrome plated.

Aluminum grids are a feature of this iron, which is fully automatic in operation. A heat indicator tells the user when the iron is at the proper temperature for baking.

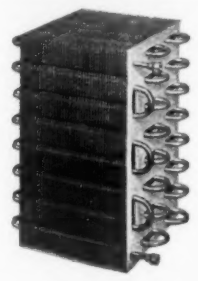
The chinaware waffle iron lists at $9.95

BUYER'S GUIDE

Manufacturers Specializing in Service to the Refrigeration Industry

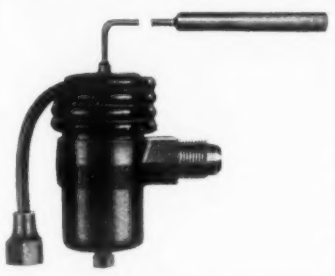
SPECIAL ADVERTISING RATE (this column only)—$12.00 per space. Payment is required monthly in advance to obtain this special low rate. Minimum Contract for this column—13 insertions in consecutive issues. All advertisements set in uniform style of type with standard border. Halftone engravings of 100-line screen, either outline or square finish. No reverse cuts or heavy black effects. No charge for composition.

A NEW FIN COIL *by* PEERLESS



Wedge-locked and edge-locked aluminum fins on finned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.,—aluminum tubing for ammonia. Absolute Metal to Metal Contact.
A Superior Coil in which Soldered Return Bends have been eliminated.
Priced to meet 1932 conditions.
Write—Wire for Catalog.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.



The PEERLESS THERMAL EXPANSION VALVE

(Pat. No. 1870090, Others Pending)

For use with Methyl Chloride and Sulphur Dioxide

The perfect thermostatic valve. The control always resides in the bulb due to the patented Peerless warming method. The PEERLESS will eliminate your expansion valve troubles.

List Price, $13.50. Write for bulletin.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

Completely assembled and individually bagged. Ready for shipment in your refrigerator. Write for complete list of standard sizes and prices.

Hoosier *Standardized* **Parts**

HOOSIER LAMP & STAMPING COMPANY, EVANSVILLE, IND.

We will make it for you!

We are perfectly equipped for quantity production of light or heavy mechanical parts or units. Precision manufacture and rapid delivery. Unusually moderate charges.

Indian Motocycle Co.

Springfield, Massachusetts

REFRIGERATION SUPPLIES

We carry a complete stock of

EVERYTHING IN REFRIGERATION

including

United Wire & Supply Corporation's Dehydrated, Deoxidized Copper Tubing

MELCHIOR, ARMSTRONG, DESSAU CO.

116 Broad St., New York 523 Arch St., Philadelphia

Do You Want Something Else to Sell?

Home owners are increasingly conscious of the advantages of clean, fresh air in kitchen, bath and other rooms of the house. There is a big market for MOTOVENT, the electric home ventilator. Fits any window—easy to install—beautiful in appearance.

Models to retail at 29.50 to 49.50. Attractive margins to distributors and dealers. Write for full details.

M O T O V E N T

FRED'K N. ROSS, Inc. 1010 Beaubien St., Detroit

YOUR ADVERTISEMENT

in this Buyer's Guide Column will be seen by distributors, dealers and refrigerator manufacturers throughout the entire world.

SPECIAL LOW RATES

make it easy to keep industry buyers constantly informed of your products and service.

Electric Refrigeration News

550 Maccabees Bldg. Detroit, Mich.

REQUESTS FOR INFORMATION

Please refer to the 1932 Refrigeration Directory and Market Data Book for a complete list of all manufacturers of refrigeration equipment, parts, materials, supplies, and accessories; also for all available statistical data on sales of refrigeration equipment, distribution methods, etc.

New edition with October Supplement (paper covers) is now available at $1.00 per copy.

Advertisers will be given preference in published answers to requests for buyer's guide service, but a complete list of all known suppliers will be mailed if stamped, self-addressed envelope is enclosed with inquiry.

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, mentioning query number.

Service Tools

Query No. 996 (Distributor, Missouri)—"Please advise us where we can obtain tools for servicing electric refrigerators."

Answer—Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago.

Sales Statistics

Query No. 997—"We would like very much to secure information regarding comparative sales of the 12 or 15 largest refrigerator manufacturers. We would prefer to know the 1931 sales for each and any 1932 data that is available, although if you are unable to give us the sales, the information on comparative size of the largest 15 would be very helpful."

Answer—The new 120 page supplement which has just been incorporated in the Refrigeration Directory and Market Data Book contains complete data on sales by months of the group of companies belonging to Nema, and an estimate of total sales for the industry. These statistics carry through September, 1932. Sales figures by individual companies are not released.

Trade Paper for Washing Machines

Query No. 998 (Service man, Missouri)—"Kindly let me know if the washing machine industry has a journal similar to Electric Refrigeration News from which I can keep up with the latest news in washing machine design."

Cabinet Handling Equipment

Query No. 999 (Distributor, Georgia)—"Will you kindly furnish me with the names of manufacturers of devices for handling domestic refrigerator cabinets? We want the best equipment available for loading, unloading, and handling cabinets during delivery to customers."

Answer—See page 264 of the Refrigeration Directory and Market Data Book.

Methyl Chloride Machines

Query No. 1000—"We are advised by the Roessler & Hasslacher Chemical Co. that you can give us a list of the manufacturers using methyl chloride."

Answer—Kind of refrigerant, as well as numerous other specifications, is given for practically all makes of electric refrigerators in the revised edition of the Refrigeration Directory and Market Data Book.

Drink Mixers and Fruit Presses

Query No. 1001 (Germany)—"Please advise us what companies manufacture the following appliances: Hamilton Beach Barmixer, Automatic Rotary Speedy Lemon press, and the Sunkist lemon and orange press?"

Answer—Barmixer is made by Hamilton Beach Mfg. Co., Racine, Wis., and the Sunkist fruit press is made by A. C. Gilbert Co., New Haven, Conn. We have no record of the Automatic Rotary Speedy lemon press.

Reclaiming Sulphur Dioxide Gas

Query No. 1002 (Service man, Wisconsin)—"I am contemplating the organization of a complete refrigeration equipment repair shop, and have been successful in securing the necessary apparatus except for an SO_2 reclaimer. I have been unable to locate either descriptive data or advertising matter on reclaimers. If you are in a position to supply me with the names and addresses of firms manufacturing such equipment, or can advise me where to secure information on the construction of a reclaimer, it will be greatly appreciated."

Answer—So far as we know, complete apparatus for reclaiming SO_2 has never been offered to the trade as the standard product of any manufacturer. The reclaiming operation requires some fairly complicated equipment for distilling and drying the gas, and most independent service men find that it is not economical to recover SO_2 because of the low first cost of this refrigerant. Moreover, reclaimed SO_2 is seldom as pure as that furnished by manufacturers of the gas.

Some of the large service stations, however, do recover the refrigerant. In these instances, the reclaiming apparatus is custom-built on the premises of the service station. For a description and photograph of reclaiming apparatus, see the April 20 issue of the *Engineering Section*, which explains Detroit Creameries' equipment. This you will note is a large-scale service operation.

Another article on this subject has been promised by one of the large manufacturers of SO_2, and is scheduled to appear in an early issue of the *Engineering Section*. We suggest you watch for it.

Automatic Defrosting Switches

Query No. 1003 (Manufacturer, Ohio)—"We are interested in working with an automatic defrosting device in connection with our refrigerators, and will appreciate any advice you can give us as to whom we can contact for equipment of this kind."

Refrigerant Efficiency

Query No. 1004—"For a small size electric refrigerator of about 4 cu. ft. capacity, what type of refrigeration gas will produce the greatest amount of chilling at the least amount of mechanical power consumption? In other words, which gas produces the greatest efficiency when the condenser is cooled by air? Also, what gas is the most efficient when water is the condensing medium?"

Answer—See page 4 of this week's *Engineering Section* which contains a good article on the subject of machine design written by R. J. Thompson of Kinetic Chemicals, Inc.

Allison and Holmes Replacement Parts

Query No. 1005 (Distributor, Florida)—"Will you please furnish us with the names and addresses of concerns which supply parts for Allison and Holmes electric refrigerators?"

Answer—See page 341 of the Refrigeration Directory and Market Data Book which lists several firms specializing in replacement parts.

Address

Query No. 1006—"We would appreciate it if you will advise us the address of Franklin R. Fetherston, secretary-treasurer of the Compressed Gas Manufacturers' Association. His article published in the Oct. 19 *Engineering Section* was very interesting, and we would like to communicate with him.

Answer—120 W. 42nd St., New York City.

OHIO HARDWARE MEN DISCUSS MERCHANDISING POLICY

DAYTON—Hoping to formulate a policy toward public utility competition, members of the Ohio Hardware Association recently gathered here to discuss relations with central station merchandising departments, according to R. A. Chandler of the Chandler Hardware Co., Sylvania, Ohio, member of the policy committee.

It was decided at this meeting that members should take the subject of utility merchandising up with department stores, electrical contractors, and electrical dealers.

For this purpose a second meeting will be held in Columbus, Ohio, in the near future with the Ohio Council of Retail Merchants. This group is made up of all trade associations in the state.

10 KELVINATOR OWNERS IN VILLAGE OF 99 PEOPLE

FERNWOOD, Miss.—Although this village has a population of only 99, there are 10 Kelvinator owners.

The cabinet models installed are: one D-11, three S-9's, one S-5, one Y-5, one 273, one S-7, one Jewett with Kelvinator unit, and one beverage cooler.

THE CONDENSER

PAYMENT IN ADVANCE is required for advertising in this column. The following rates apply:

POSITIONS WANTED—Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. ALL OTHER CLASSIFICATIONS—Fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

MISCELLANEOUS

WANTED: To communicate with a high class combination sales and service engineer who would like to open an independent service organization in a city of North Carolina, 6,000 machines. Must be willing to invest a small capital, work hard, etc. For other particulars write in own hand writing, giving age, experience, reference, and an outline of your idea on a set up of this kind. Write to W. H. Parker, 714-716 West Market St., Greensboro, N. C.

Trained Men Available

When in need of practical, trained shop mechanics, sales, installation or service men, patronize this FREE Placement Bureau. We have competent, trained graduates available in every locality, to meet your requirements. With or without experience. No charge to the men or to you. Write, phone or wire.

Utilities Engineering Institute

Placement Division

Dept. 25112 404 No. Wells St., Chicago

ALLEN-INGRAHAM, INC., IS STAGING SALES CONTEST

NEW YORK CITY—Allen-Ingraham Inc., Westinghouse refrigerator distributor here, is conducting a sales contest during November and December in which all the men in the organization from salesmen to sales manager have a chance to participate, and in which the prizes are 12 trips to Bermuda with all expenses paid.

The contest is being conducted by the retail division which is divided into nine zones.

Not only will the highest salesman in each zone receive a trip to Bermuda, but also the two sales directors whose crews make the greatest number of sales.

In addition to these, the metropolitan sales manager and his assistant have divided the sales force into two divisions, and whichever division makes the greatest number of sales, the manager in charge of that division will also find himself Bermuda bound.

COPELAND SALESMAN WINS NEW ORLEANS CONTEST

NEW ORLEANS—G. R. Couvillion, retail salesman for the Edw. N. Eberling & Co., Inc., local Copeland distributor, recently was awarded the first prize of $100 in the automatic refrigeration "Olympic" sales contest sponsored by the New Orleans Public Service Co.

In competition with Mr. Couvillion were 157 salesmen representing other makes of refrigerators. During the period of the contest several hundred refrigerators were sold, sponsors of the contest have declared.

COMBINATION SUBSCRIPTION RATES

How to save money on your subscription order

NO.	PUBLICATIONS	YOU PAY	YOU SAVE
1	Electric Refrigeration News (1 Year) and Refrigeration Directory and Market Data Book*	$3.50	$ .50
2	Electric Refrigeration News (2 Years) and Refrigeration Directory and Market Data Book*	$5.50	$1.50
3	Refrigerated Food News (1 Year) and Refrigeration Directory and Market Data Book*	$1.50	$ .50
4	Refrigerated Food News (1 Year) and Electric Refrigeration News (1 Year)	$3.50	$ .50
5	Refrigeration Directory and Market Data Book* and Electric Refrigeration News (1 Year) and Refrigerated Food News (1 Year)	$4.00	$1.00
6	Refrigeration Directory and Market Data Book* and Electric Refrigeration News (17 Weeks)	$1.50	$ .50

Order by number. Use coupon below. These rates for U. S. only.
*New edition, with paper cover, including Supplement.

Group Order Rates for U. S. and Foreign Countries

PUBLICATIONS	NUMBER	UNITED STATES*	CANADA†	ALL OTHER COUNTRIES
Electric Refrigeration News	1 subscription	$3.00	$6.00	$4.00 These foreign
	5 or more, each	2.75	5.75	3.75 rates will
	10 or more, each	2.50	5.50	3.50 be increased
	20 or more, each	2.25	5.25	3.25 on or before
	50 or more, each	2.00	5.00	3.00 Jan. 1, 1933
Refrigerated Food News	1 subscription	$1.00	$2.00	$1.50 These foreign
	5 or more, each	.95	1.95	1.45 rates will
	10 or more, each	.90	1.90	1.40 be increased
	20 or more, each	.85	1.85	1.35 on or before
	50 or more, each	.80	1.80	1.30 Jan. 1, 1933.
BOTH PAPERS	1 subscription	$3.50	$7.00	$5.00 These foreign
	5 or more, each	3.25	6.75	4.75 rates will
	10 or more, each	3.00	6.50	4.50 be increased
	20 or more, each	2.75	6.25	4.25 on or before
	50 or more, each	2.50	6.00	4.00 Jan. 1, 1933.

*U. S. and Possessions and Pan-American Postal Union Countries.
†High rates for Canada are due to Canadian tariff of 5c per copy.

SUBSCRIPTION ORDER

BUSINESS NEWS PUBLISHING CO., ...1932
550 Maccabees Bldg., Detroit, Mich.

☐ Enclosed is remittance for $.....
☐ Please enter my order for COMBINATION OFFER NO..... at $.....
☐ Enter subscription to Electric Refrigeration News ☐ 1 Year $3.00. ☐ 2 years $5.00.
☐ Enter subscription to Refrigerated Food News ☐ 1 Year $1.00. ☐ 2 Years $1.50.
☐ Send Refrigeration Directory and Market Data Book including Supplement. $1.00 per copy.

Name .....
Address .....
City ..... State.....

11-30-32

BUREAU ADVOCATES CHRISTMAS DISPLAYS

NEW YORK CITY—In a circular letter addressed to local bureaus throughout the country, the Electric Refrigeration Bureau is advocating local window and store interior display contests to tie in with the bureau's national Christmas display contest, and thereby assist in the stimulation of refrigerator sales during the pre-holiday period.

Such local contests may be promoted by the local bureaus both within and outside their membership or, particularly in non-bureau communities, they may be sponsored by local power companies, state bureau officials. In general they can be patterned after the national contest, with special rules to fit local conditions and with such prizes as can be afforded.

Wherever there are dealers contemplating entering the national contest, the same displays can be entered in both the national and local competitions, provided always that the prescribed tie-up with the Electric Refrigeration Bureau is featured.

This, the bureau points out, provides an inexpensive and effective method of securing dealer cooperation in boosting December sales all along the line. Distributors can promote similar contests among their own dealers and the respective winners will still be eligible to compete for the prizes in the bureau's national contest so long as they conform to its rules and makes formal entries in the proper classes.

PITTSBURGH DISTRIBUTOR CHOSEN BY KELVINATOR

PITTSBURGH—The C. R. Rogers Co., which started business on Fairmount Ave. here 10 years ago as a tiny battery shop, has just been appointed distributor of Kelvinator electric refrigerators, according to C. R. Rogers, president.

The company, Mr. Rogers' associates point out, has experienced a remarkable growth from virtually a "shoe-string" concern to an organization which employs 60 persons in its home offices. It enjoys the distinction of being one of the few Pittsburgh concerns that has continued to grow despite the depression.

For some time, the Rogers Co. has been the largest Philco radio distributor in the country, serving 600 dealers in western Maryland, West Virginia, eastern Ohio, and western Pennsylvania. As Kelvinator distributor, the company will serve dealers in West Virginia and western Pennsylvania as far east as Harrisburg, Pa.

A one-story brick structure, where new offices will be located, is being added to the home office at 5435-45 Penn Ave.

20 Spokane Firms Hold Air-Conditioning Show

SPOKANE, Wash.—Approximately 20 plumbing and heating firms here held their first air-conditioning show recently, for the purpose of inaugurating a campaign to educate the public in the uses and advantages of this equipment.

McCORD
REFRIGERATION
PRODUCTS

Commercial Evaporators

Domestic Evaporators

Condensers

Easy-Out Ice Trays

Spiral Finned Tubing

Spiral Copper Finned Iron, Steel or Copper Pipe

McCORD RADIATOR & MFG. CO.

DETROIT, MICH.

Nema Sales—October, 1932

Reported by Refrigeration Division of National Electrical Manufacturers Association. Member companies: Copeland, Crosley, Frigidaire, General Electric, Gibson, Grigsby-Grunow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse. Statistics for Crosley and Gibson not included.

As Billed to Distributors and Dealers, Including Exports

Lowest Priced Cabinets — Net Food Space	Systems Included — Quantity	Systems Included — Dollars	Cabinets Only — Quantity	Cabinets Only — Dollars
1. Under 4.00 cu. ft.	244	14,047.50	2	46.00
2. 4 to 4.99 cu. ft.	6,934	460,322.27	252	5,900.00
3. 5 to 5.99 cu. ft.	2,821	229,873.89	34	1,143.00
4. 6 to 6.99 cu. ft.	3,232	284,916.40	2	61.00
5. 7 to 7.99 cu. ft.	1,946	236,475.36	1	42.00
6. 8 to 9.99 cu. ft.	319	44,166.50	...	.....
7. 10 to 12.99 cu. ft.	203	40,859.61	...	.....
8. 13 to 16.99 cu. ft.	56	12,807.26	...	.....
9. 17 to 24.00 cu. ft.	2	605.00	7	1,237.00
10. Totals if Cabinets only	...	.....	**298**	**8,429.00**
11. Totals if Systems included	**15,757**	**1,324,073.79**	...	.....
Medium Priced Cabinets				
21. Under 4.00 cu. ft.	467	39,244.43	...	.....
22. 4 to 4.99 cu. ft.	4,801	430,489.85	3	90.00
23. 5 to 5.99 cu. ft.	1,359	140,395.57	...	.....
24. 6 to 6.99 cu. ft.	2,577	309,330.54	9	180.00
25. 7 to 7.99 cu. ft.	202	29,714.45	...	.....
26. 8 to 9.99 cu. ft.	555	96,755.00	15	897.00
27. 10 to 12.99 cu. ft.	100	22,566.00	10	1,074.00
28. 13 to 16.99 cu. ft.	36	9,469.00	3	395.00
29. 17 to 24.00 cu. ft.	14	4,976.00	31	5,226.00
30. Totals if Cabinets only	...	.....	**71**	**7,862.00**
31. Totals if Systems included	**10,111**	**1,082,940.84**	...	.....
Highest Priced Cabinets				
41. Under 4.00 cu. ft.	...	.....	...	.....
42. 4 to 4.99 cu. ft.	18	1,876.00	...	.....
43. 5 to 5.99 cu. ft.	12	1,477.00	...	.....
44. 6 to 6.99 cu. ft.	...	.....	...	.....
45. 7 to 7.99 cu. ft.	...	.....	...	.....
46. 8 to 9.99 cu. ft.	6	1,719.41	...	.....
47. 10 to 12.99 cu. ft.	...	.....	...	.....
48. 13 to 16.99 cu. ft.	2	822.00	...	.....
49. 17 to 24.00 cu. ft.	...	.....	...	.....
50. Totals if Cabinets only	...	.....	...	.....
51. Totals if Systems included	**38**	**5,894.41**	...	.....

HOUSEHOLD	Quantity	Dollars
61. Total (cabinets only)	369	16,291.00
62. Total (systems included)	25,906	2,412,909.04
63. Separate Household Systems	602	58,521.50
64. Separate Household Low Sides	786	12,634.00
65. Total Items 62, 63 and 64†	**27,294**	.....
66. High Sides, ¼-hp. and Less	564	30,676.61
67. Parts and Miscellaneous (household)	...	16,365.70
68. Total of 61, 62, 63, 64, 66 and 67	...	**2,547,397.85**
COMMERCIAL		
71. Water Coolers with High Sides	260	30,139.85
72. Water Coolers with No High Sides	108	6,035.00
73. Ice Cream Cabinets with High Sides	146	19,490.00
74. Ice Cream Cabinets with No High Sides	132	15,338.00
75. Milk Coolers with No High Sides	...	.....
76. Room Coolers with No High Sides	15	1,859.00
77. Counters and Commercial Boxes	32	9,324.00
78.		
79. Extra Low Sides (commercial)	3,365	119,231.52
80. Extra High Sides, 1/3-hp. and Up	2,043	273,497.04
81. Parts and Miscellaneous (commercial)	...	33,048.00
82. Total 71 to 76 inclusive and 79††	**4,026**	.....
83. Total Items 65 and 82	**31,320**	.....
84. Total Commercial (71 to 81 inclusive)	...	**507,962.41**
85. Total Dollars (68 and 84)	...	**3,055,360.26**

Nema Stocks—October 31, 1932

	Systems Included — Factory, Branch and Warehouse — Quantity	— Dollars	Systems Included — Distributors and Dealers — Quantity	— Dollar	Cabinets Only — Factory, Branch and Warehouse — Quantity	— Dollars	Cabinets Only — Distributors and Dealers — Quantity	— Dollars
1.	279	16,260.75	1,223	69,862.00	204	4,651.00	3	62.00
2.	5,412	375,367.99	4,290	295,282.51	4,405	68,447.40	34	830.00
3.	5,988	476,860.46	4,292	350,952.32	4,439	155,546.40	44	1,627.00
4.	2,509	224,905.00	2,561	232,328.50	1,297	32,971.00	...	.....
5.	5,276	637,097.23	3,282	385,996.88	10,615	650,578.00	4	261.00
6.	94	14,839.00	530	87,569.00	23	1,368.00	4	282.00
7.	831	174,782.72	693	146,438.12	...	.....	...	.....
8.	842	184,221.00	213	49,383.00	40	4,912.00	1	112.00
9.	769	229,302.00	129	36,485.00	6	1,060.00	7	1,236.00
10.	...	.....	...	.....	**21,029**	**919,533.80**	**97**	**4,410.00**
11.	**22,000**	**2,333,636.15**	**17,213**	**1,654,297.33**	...	.....	...	.....
21.	1,467	121,876.88	838	69,340.45	825	33,484.00	1	21.00
22.	23,086	2,038,976.80	13,275	1,173,676.00	2,556	102,850.00	1	29.00
23.	4,426	450,225.95	3,742	388,274.50	535	26,266.20	1	41.00
24.	28,783	3,505,324.22	12,631	1,558,374.36	1,370	51,349.00	...	.....
25.	2,154	305,429.00	946	125,226.00	275	21,450.00	...	.....
26.	4,406	765,459.00	2,859	486,452.00	115	8,312.00	1	99.00
27.	3,333	788,773.75	1,048	238,624.00	660	58,280.00	...	.....
28.	2,049	516,761.00	188	48,850.00	10	1,261.00	...	.....
29.	777	272,751.00	224	79,493.00	303	53,547.00	123	20,978.00
30.	...	.....	...	.....	**6,649**	**356,799.20**	**127**	**21,168.00**
31.	**70,481**	**8,765,577.60**	**35,751**	**4,168,310.31**	...	.....	...	.....
41.	...	.....	...	.....	...	.....	...	.....
42.	206	21,665.00	...	.....	393	15,327.00	...	.....
43.	300	36,926.00	43	5,293.00	...	.....	...	.....
44.	2	358.00	...	.....	...	.....	...	.....
45.	...	.....	...	.....	...	.....	...	.....
46.	82	13,940.00	32	5,440.00	...	.....	...	.....
47.	...	.....	...	.....	...	.....	...	.....
48.	17	3,910.00	1	230.00	...	.....	...	.....
49.	...	.....	...	.....	...	.....	...	.....
50.	...	.....	...	.....	**393**	**15,327.00**	...	.....
51.	**607**	**76,799.00**	**76**	**10,963.00**	...	.....	...	.....

HOUSEHOLD	*8 Mfrs.—95.12% Factory, Branch and Warehouse — Quantity	— Dollars	*6 Mfrs.—74.87% Distributors and Dealers — Quantity	— Dollars
61. Total (cabinets only)	28,071	1,291,660.00	224	25,578.00
62. Total (systems included)	93,088	11,176,012.75	53,040	5,833,570.64
63. Separate Household Systems	4,287	280,174.00	250	10,130.00
64. Separate Household Low Sides	6,332	126,324.00	981	24,683.00
65. Total Items 62, 63 and 64†	**103,707**	.....	**54,271**	.....
66. High Sides, ¼-hp. and Less	2,053	116,901.70	479	28,442.00
67. Parts and Miscellaneous (household)	...	46,232.00	...	.....
68. Total of 61, 62, 63, 64, 66 and 67	...	**13,037,304.45**	...	**5,922,403.64**
COMMERCIAL				
71. Water Coolers with High Sides	13,120	1,509,323.76	3,278	380,880.10
72. Water Coolers with No High Sides	915	52,140.00	211	11,765.00
73. Ice Cream Cabinets with High Sides	2,312	308,831.00	129	17,053.00
74. Ice Cream Cabinets with No High Sides	3,561	401,467.00	262	30,506.00
75. Milk Coolers with No High Sides	11	1,129.00	69	8,539.00
76. Room Coolers with No High Sides	2,755	307,578.00	255	30,109.00
77. Counters and Commercial Boxes	1,220	315,189.00	429	135,198.00
78.				
79. Extra Low Sides (commercial)	17,587	649,716.24	5,479	205,751.00
80. Extra High Sides, 1/3-hp. and Up	12,540	1,685,276.86	2,990	453,041.40
81. Parts and Miscellaneous (commercial)	...	146,160.54	...	5,374.00
82. Total 71 to 76 inclusive and 79††	**40,261**	.....	**9,683**	.....
83. Total Items 65 and 82	**143,968**	.....	**63,954**	.....
84. Total Commercial (71 to 81 inclusive)	...	**5,376,811.40**	...	**1,278,216.50**
85. Total Dollars (68 and 84)	...	**18,519,590.85**	...	**7,200,620.14**

No. of Mfrs. reporting on Line 85, their % of total sales—9 Mfrs.—96.88%. 6 Mfrs.—74.87%.

Line 85 prorated to correspond with total sales of 10 companies — **$19,116,011.00** — **$9,617,497.00**

*Shows number of manufacturers reporting on items above line 85 in these double columns, also the % of total sales for the month made by these companies.

†Nema uses these figures to represent number of household cabinets which can be refrigerated by household low sides listed in above statistics whether shipped with complete refrigerators, with systems or as separate low sides.

††Nema uses these figures to represent number of separate commercial pieces which can be refrigerated by commercial low sides listed in above statistics.

MISS GEARING JOINS STAFF AT KELVINATOR CORP.

DETROIT—Miss Jean Gearing, formerly of the copy organization of Maxon, Inc., has been appointed to the staff of the home economics department at the Kelvinator factory.

She will take charge of the secretarial duties of the home economics department, and will assist in recipe testing.

AIR CONDITIONING MARKETING REPORT ISSUED

NEW YORK CITY—A special report, "Marketing Electric Air Conditioning," has just been released by the general power committee of the National Electric Light Association.

Consideration has been given in this report to general definitions, and applications in typical industries.

General Electric Increases Budget, Zimmerman Tells Conference

(Concluded from Page 1, Column 5)

"New Sales Tools, Their Uses and What They Will Bring."

Lorin W. Smith, Jr., director of the General Electric Kitchen Institute in Chicago, "The General Electric Kitchen."

R. C. Cameron, merchandising division, "The Department Store Plan and the 'Store Within a Store'."

J. M. Walker, utility division, "Better Business Methods Through the Utility."

J. DeJen, campaign manager, "Campaigning for Sales," and the "Two-Star Christmas Selling Plan."

E. H. Norling, "Dealer Advertising and Direct Mail."

The advantages of selling commercial refrigeration and acceptance of General Electric conditioned air refrigeration as was shown in the recent Monitor Top Election campaign was explained by Walter E. Landmesser, manager of the commercial division of the refrigeration department.

Landmesser pointed to the fact that commercial sales played the most important part in the election of Albert Ahrens to the presidency of Refrigerania. President-elect Ahrens made more than 230 per cent of quota and the bulk of this business was composed of conditioned air display cases and large conditioned air cabinets.

Those attending the wholesale managers meeting, were as follows:

H. G. Bogart, Jr., H. G. Bogart Co., Toledo; E. H. Schaefer, E. H. Schaefer, Inc., Milwaukee; M. B. Mendenhall, Crescent Electric Supply Co., Davenport, Iowa.

Albert Ahrens, Ahrens Refrigerator Co., Oklahoma City; N. K. Ovalle, N. K. Ovalle, Inc., Harrisburg, Pa.; A. A. Uhalt, refrigeration department, Cleveland; P. L. Miles, Edison G. E. Appliance, Inc., Chicago.

Warde B. Stringham, General Electric Supply Co., Des Moines, Iowa; W. G. Kiesel, W. N. Hogan, Inc., Wheeling, W. Va.; John Sorg, Frank Wolf, Inc., Buffalo; B. W. Simpson, N. K. Ovalle, Harrisburg, Pa.

W. M. Hutchison, N. K. Ovalle, Inc., Harrisburg, Pa.; H. H. Fehr, N. K. Ovalle, Inc., Harrisburg, Pa.; Lorin W. Smith, G. E. Kitchen Institute, Chicago.

A. F. Head, Hoosier Electric Refrigeration Corp., Indianapolis; W. L. Rasmussen, Glueck & Co., Kansas City, Mo.; J. M. Walker, refrigeration department, Cleveland; W. E. Landmesser, refrigeration department, Cleveland.

A. E. Freshman, General Electric Co., district representative in Memphis, Tenn.; R. E. Kaiser, Thompson-Sterling Co., Louisville; K. F. Stutz, Thompson-Sterling Co., Louisville.

M. E. Pipkin, Rex Cole, Inc., New York City; J. E. Neily, Modern Home Utilities, Inc., Waterbury, Conn.; H. G. Welfare, Cushman Refrigeration Co., Cleveland; D. E. Breckenridge, Breckenridge, Inc., Springfield, Mass.

Turner Barger, Bard-Barger, Inc., Columbus, Ohio; L. C. Kohlman, R. Cooper Jr., Inc., Chicago; Lynn Mahin, Thompson-Sterling Co., Louisville.

W. J. Packham, Canadian G. E. Co., Toronto; G. C. Davidson, Canadian G. E. Co., Toronto; C. O. Brown, Pendergraph-Brown, Inc., Nashville, Tenn.; Otto W. Nelson, P. H. Harrison & Co., Newark.

V. K. Stalford, Ochiltree Electric Co., Pittsburgh; Charles Gould, Gould-Farmer Co., Syracuse, N. Y.; J. E. Axtell, advertising manager Electric Cookery Times, Cleveland; W. F. Henze, Electric Cookery Times, Cleveland.

Fielding Chandler, refrigeration department, Cleveland; H. W. Kumler, refrigeration department, Cleveland; S. E. Stewart, Electric Home Appliance Co., Charleston, W. Va.; William Page, A. Wayne Merriam, Inc., Schenectady, N. Y.

C. E. Weitzel, The Hines Co., Baltimore; G. S. Wasser, Metropolitan Motion Picture Co., Cleveland; X. F. Sutton, Metropolitan Motion Picture Co., Cleveland; R. L. Hughes, James & Co., Inc., St. Louis.

H. H. Bosworth, refrigeration department, Cleveland; H. D. Conklin, Edison G. E. Appliance, Inc., Chicago; Paul H. Dow, General Electric Co. district representative in central district; D. G. Keller, Glueck & Co., Kansas City, Mo.

P. B. Zimmerman, general manager, refrigeration department, Cleveland; J. L. Busey, General Electric Co., Bridgeport, Conn.; J. L. Buchanan, General Electric Supply Corp., Bridgeport, Conn.; R. A. Shackleford, General Electric Co., Bridgeport, Conn.; W. H. Kaiser, General Electric Supply Co., Boston.

ALTER CO. TAKEN OVER AS MAJESTIC FACTORY BRANCH

(Concluded from Page 1, Column 2)

ness will be carried out at the Grigsby-Grunow main offices at 5801 Dickens.

This direct factory operation, Grigsby-Grunow Co. officials believe, will provide a testing ground for factory sales plans, and will enable the factory to give distributors tested selling methods. It will also put the factory in close touch with the field.

The operation will include a contract department which will perpetuate and create Majestic dealerships in the territory formerly handled by the Harry Alter Co.

VERMONT BUREAUS STAGE DRIVE TO REACH QUOTA

NEW YORK CITY—The electric refrigeration bureaus in Vermont, 14 in number, are putting on a concerted drive to reach their combined quota by the end of the year, according to G. N. Brown, refrigeration manager of the national bureau. On Nov. 12 they had sold 82.1 per cent of their year's quota, with five bureaus already over the top.

Those reaching quota are: Brattleboro, with 130.6 per cent; Barre, with 128.6 per cent; White River Junction, with 114.1 per cent. Bennington, with 113.8 per cent; and Montpelier, with 111.9 per cent. Burlington, with the largest number of total sales, 429, hopes to join the select circle within the next two or three weeks.

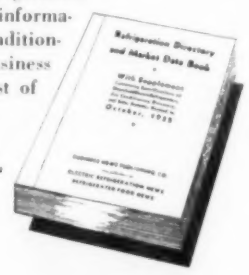
DEALERS! ASSEMBLERS!

A chance for you to buy compressors or complete units from the manufacturer at an interesting price.

KING KOLD CORP.
2300 S. Western Ave.
CHICAGO

WHY Should I Know About Air Conditioning?

Willis H. Carrier says: "It is my own opinion that air conditioning will contribute substantially in numerous direct and indirect ways to business improvement and to the maintenance of the tempo of our advancement." Everyone selling or expecting to sell air-conditioning equipment should know the names of manufacturers engaged in this new business. Further, it is important to be informed on the types of equipment available. The new Supplement to the Refrigeration Directory contains reliable information on the progress of air conditioning. The present status of the business is summarized and a complete list of manufacturers is given.



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Engineering Section

IN TWO PARTS PART TWO

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

VOL. 7, NO. 13, SERIAL NO. 193

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DETROIT, MICHIGAN, NOVEMBER 30, 1932

Entered as second-class matter Aug. 1, 1927, at Detroit, Mich.

THREE DOLLARS PER YEAR

ENGINEERS OPEN WINTER MEETING NEXT WEDNESDAY

Fundamentals Stressed On Annual Program Of Society

NEW YORK CITY—Plans are nearing completion for the annual winter meeting of the American Society of Refrigerating Engineers to be held Dec. 7, 8, and 9 at the Hotel New Yorker here.

Those in charge of the convention have announced that considerable attention has been given to reducing expenses for the society and delegates this year, and that more than usual stress will be laid on treatment of fundamentals at the convention rather than on subjects which are of popular or industrial interest.

Morning and afternoon sessions will be held during the first two days of the conclave, while an inspection tour will occupy the afternoon of the third day, following a regular morning session.

Joint session with the American Society of Mechanical Engineers has been omitted from this year's convention, although the mechanical engineers will be in session at the same time as the refrigerating engineers.

The A.S.R.E. meeting also coincides with the biennial Power Show, which convention attendants will be privileged to attend.

Complete program for this year's convention follows:

Wednesday, Dec. 7

Registration, 9 a. m.

Opening of first session, 10 a. m., with Glenn Muffly, president of the society, in the chair.

With "Air Conditioning" as the subject for discussion at the first session, three men will address the society. Speakers and their subjects follow:

"Water as a Refrigerant," John Everetts, Jr., New York City.

"Comfort Cooling With Ice in 1932," George B. Bright, consulting engineer, Detroit.

"Air-Conditioning Theory: Classroom Methods of Presentation," J. A. Goff, assistant professor of mechanical engineering, University of Illinois, Urbana, Ill.

Welcome luncheon, 1 p. m.

Opening of second session, 2 p. m.,

(Concluded on Page 8, Column 1)

NORTH AMERICAN DESIGNS MIDGET REFRIGERATOR CAR

CHICAGO—North American Car Corp. here has just completed construction of a railway refrigerator car built to meet motor truck competition in that it is but half the size of standard railway refrigerator cars.

Although the one model of the new car now completed is built for ice refrigeration, similarly constructed cars will be adaptable for use with mechanical refrigeration equipment or solid carbon dioxide, according to E. D. Brigham, Jr. vice president of the manufacturing company.

The car has four wheels instead of the usual eight, and complies with all present American Railway Association and Interstate Commerce Commission requirements.

It is of all steel construction, has a loading capacity of 770 cu. ft., and is designed for carrying a 10,000-lb. load, according to Mr. Brigham.

A feature of the new car is that its 5 in. of insulation can be removed without the doors being taken from their supports. This is possible, says Mr. Brigham, because the exterior of the car is a removable steel shell.

Cork Zero is the insulation used in the

Concluded on Page 8, Column 2)

THREE KELVINATOR UNITS PLACED IN FOOD MARKET

ROCHESTER, N. Y.—Installation of three Kelvinator condensing units has just been made in Wegeman's food market here by Rochester Branch Sales, Kelvinator dealer.

The equipment will be used to cool two walk-in coolers, five 13-ft. display cases, and one display window, and consists of two WRD-150 3-hp. condensing units, and one WRD-130 2-hp. unit, according to George H. Curtis, who supervised installation of the equipment.

Advanced in the Frigidaire Ranks

H. S. TURNER
New Frigidaire service manager.

F. M. McCARTHY
Named assistant service manager.

H. F. LEHMAN
New commercial sales manager.

CARRIER MEN SPEAK ON RAILROAD COOLING

NEW YORK CITY—Latest developments in unit and railway car air conditioners were told to the New York section of the American Society of Refrigerating Engineers at its November meeting by two engineers of the Carrier companies, R. W. Waterfill and J. F. Munder, Jr.

L. L. Lewis, past president of the section, and also a Carrier engineer, was the sponsor and temporary chairman of the meet, held in the auditorium of the Electrical Association of New York. After the meeting a tour of the exhibit of the association was conducted.

Waterfill, who is with the Carrier Engineering Corp., was the first speaker. He called his paper "Practical Applications of the Steam Ejector Water Cooler," and confined himself largely to the use of steam ejector type of air cooler on railroad cars.

"The main problem of air conditioning," Waterfill said, "is not the selection of equipment from two or three standard types, but the complete analysis of the job to be done, and then the application of one of many different forms of conditioners with special regard to safety, simplicity, space, initial cost, operating cost, flexibility, and the availability of air and water."

For short seasons, he said, low investment cost is obviously more desirable than low-operating cost. Furthermore, many types of conditioners satisfactory under some conditions, are eliminated from consideration for railway use because of the safety factor. Also, the fact that the railway car conditioner

(Concluded on Page 8, Column 3)

THREE GENERAL ELECTRIC SCIENTISTS ARE HONORED

SCHENECTADY, N. Y.—Three outstanding General Electric scientists, Drs. Willis R. Whitney, Irving Langmuir, and W. D. Coolidge were honored at a testimonial dinner last week by the Schenectady service clubs and the Chamber of Commerce at the Hotel Van Curler here.

The affair which was one of the largest testimonial civic gatherings ever held in the city, was broadcast over the local station WGY. Count Clarence Von Rosen, equerry to the king of Sweden, was the principal speaker.

GOVERNMENT ORDER KEEPING SANITARY PLANT BUSY

FOND DU LAC, Wis.—A contract for 1,004 ice refrigerators has just been awarded the Sanitary Refrigerator Co. here by the U. S. War Department. Amounting to $31,675.50, this order is expected to keep the Sanitary plant busy until Feb. 1, 1933.

G. E. NAMES D. W. McLENEGAN CONDITIONING ENGINEER

NEW YORK CITY—D. W. McLenegan has been appointed assistant engineer of the commercial engineering division of the General Electric air-conditioning department, according to J. J. Donovan, manager of the department.

Lehman and Turner Promoted By Frigidaire

DAYTON—H. F. Lehman, since 1928 service manager of Frigidaire Corp., has been appointed commercial sales manager of that organization, according to an announcement last week by E. G. Biechler, president. He succeeds Lowell McCutcheon, who was recently placed in charge of the company's Chicago operations.

H. S. Turner, formerly assistant service manager, succeeds Mr. Lehman as head of that department, and F. M. McCarthy becomes assistant service manager. Mr. Turner joined the Frigidaire organization in 1925 as a travelling representative and became assistant service manager in 1928. Mr. McCarthy was formerly with General Motors Radio Corp. and the Freid-Eisemann Co.

Mr. Lehman began working for Frigidaire during vacation, while a student at Otterbein College and upon graduation was assigned to the final inspection department. Transferred to the service department, he became assistant service manager in 1926 and two years later was appointed service manager.

B. J. Vandoren continues as manager of the wholesale division, and R. B. Ambrose as manager of the retail division.

BRISTOL INSTRUMENT CO. OPENS ENGLISH FACTORY

WATERBURY, Conn.—Bristol Co. of this city established a British factory at London, England, under the name of Bristol's Instrument Co., Ltd., on Oct. 1, according to Julian Gran, treasurer of the company.

Howard H. Bristol, president of the Bristol Co., recently made a special trip to London to arrange for the formation of the British company. Mr. Bristol is chairman of the board of the new company, and Alexander L. Dugon of J. W. and C. J. Phillips, Ltd., is vice chairman and managing director.

The plant is located at 144 Pomeroy St., New Cross, London, and consists of an office building and a new two-story factory building of modern construction.

BALDERSTON TALKS TO LOS ANGELES A.S.R.E.

LOS ANGELES — Mercury thermometers for refrigeration use were described by W. P. Balderston of the Precision Thermometer and Instrument Co. before the Nov. 14 meeting of the Los Angeles section, American Society of Refrigerating Engineers. The meeting was conducted by H. G. Mansfield.

"The complete manufacture of a high-grade thermometer requires some 17 distinct steps," Mr. Balderston declared. "Such a thermometer is not made of one piece of glass, but instead, the bulb is blown separately and attached to the tube.

"Briefly, the process consists of taking a ball of glass into the air, blowing air into it, and allowing it to drop, thus forming a tube. Naturally, the hole in the tube will vary from one point to another and for this reason each thermometer must be individually calibrated.

"The first operation in making a thermometer is to select a piece of tube the desired length, on one end of which a small blister is blown to which the bulb is to be attached. A bulb of the correct size is next blown; and also a blister, to be attached to the upper end and used in filling.

"The bulb and blister are fastened to the lower and upper end of the tube and the top of the blister broken off. The thermometer is now heated and the blister is immersed in mercury. As the air in the bulb cools and contracts a small drop of mercury is drawn down into the bulb," he explained.

The thermometer is heated again until the small drop of mercury boils, forcing out the air and filling the bulb and tube with mercury vapor. Now, when the blister is immersed in mercury and the thermometer allowed to cool, the

(Concluded on Page 8, Column 4)

DU COMB NAMED DISTRIBUTOR FOR FEDDERS IN DETROIT

DETROIT—W. C. Du Comb Co., 6335 E. Palmer Ave. here has been appointed distributor in this territory for refrigeration products of the Fedders Mfg. Co., Buffalo, according to J. L. Hetzel.

Small Machines Best For Breweries, Bright and Huetteman Declare

By John T. Schaefer

DETROIT—If Congress legalizes beer, future breweries will be radically different in design from their pre-prohibition predecessors, in the opinion of George Bright, president, and Theodore Huetteman, engineer, of the Detroit Ice Machine Co.

They expect greatly increased use of electric refrigeration, with lower brewing costs and faster production of beer.

In the old days, they relate, brewery designers each tried to surpass the other in size of refrigerating systems, with the result that 1,000-ton plants were not uncommon. They were steam-driven plants, ungainly in size and uneconomical in operation compared with newly developed electric refrigerating systems.

This country used some 100,000 tons of brewery refrigeration in pre-war days, Mr. Bright reports. Replacement of even a portion of this capacity with electric systems is an attractive prospect for the commercial refrigeration industry, he points out. In addition, many small machines will be required in vending beer, whether it be the draught or bottled variety.

Instead of one large steam-driven compressor, a brewery will use several small electric machines, Mr. Bright declares, because refinements of the last few years have made them more reliable and cheaper to operate. Moreover, a brewery operator will be able to use one or two small machines when the load is light, thus saving in power consumption.

Both Mr. Bright and Mr. Huetteman were designers of brewery refrigeration plants before the passage of the Eighteenth Amendment. Both were active in the firm of Huetteman & Cramer

(Concluded on Page 2, Column 4)

WORLD'S LARGEST AIR-CONDITIONING SYSTEM ORDERED

Carrier Gets Contract For New 70-Story R.C.A. Building

NEWARK—The largest air-conditioning system in the world—involving more than $1,000,000 of work—will be installed in the broadcasting studios and lower floors of the new 70-story R.C.A. building in Rockefeller Center, New York City, according to a contract just awarded to the Carrier Engineering Corp.

Under a previous contract, awarded last spring, the Carrier company is now completing air-conditioning installations in the two theaters—R.K.O. Roxy and the International Music Hall—located in the Rockefeller development, so that the air-conditioning work thus far undertaken in Rockefeller Center totals upwards of $2,000,000.

In the new R.C.A. building, two batteries of centrifugal refrigerating machines will provide some 1,500 tons of refrigerating effect for summer cooling. One will take care of the National Broadcasting studios from the third to the eleventh floors, the other will serve the basement, ground, and first floors.

Nearly 15 miles of duct work and more than 1,000 outlets and returns will be required for distribution of the conditioned air.

Under extreme hot weather conditions about 18,000,000 B.t.u.'s will be removed from the building every hour. This is

(Concluded on Page 8, Column 1)

ICE CREAM CONCERNS BLOCK DETROIT CODE

By John T. Schaefer

DETROIT—Efforts to modernize the existing Detroit refrigeration code made little headway in the meeting called Tuesday afternoon, Nov. 22, by Halstead Mills, chief safety engineer for the city, to consider the proposed code revisions which had been mailed to all interested parties.

Whereas a similar meeting a month ago was dominated by real estate interests objecting to any additional civil regulation which would impose additional taxes on property owners, Tuesday's session found several representatives of ice cream companies voicing strong objections to requirements in the proposed code that a permit must be secured before a refrigerating system can be installed or repaired.

Heated discussion developed on one or two occasions, particularly between F. G. Ell of the Greater Detroit Building Association and Inspector Mills. Mr. Ell complained of the clause in the proposed ordinance which stipulated that refrigeration systems larger than 1-ton capacity be in charge of a licensed operator.

Mr. Ell contended that the oral examination on which each license would be granted permits graft and favoritism to certain operators. Inspector Mills retorted that none had ever been countenanced in the department of safety engineering.

After an hour and a half of argument and wrangling, the meeting made no progress, and adjourned with Commissioner Joseph P. Wolff (acting on the suggestion of Carlos Jolly, General Motors Corp.), appointting three small committees to meet with Inspector Mills in drawing up a new ordinance.

On the committee for small refrigerating machines, including apartment house installations, are E. A. Seibert, Kelvinator service manager; William

(Concluded on Page 2, Column 5)

VENTILATING ENGINEERS TO CONVENE JAN. 23-25

CINCINNATI — The thirty-ninth annual meeting of the American Society of Heating and Ventilating Engineers will be held at the Hotel Gibson, here, Jan. 23 to Jan. 25, 1933, under the auspices of the recently organized Cincinnati chapter.

President F. B. Rowley, director of experimental engineering laboratories at the University of Minnesota, will preside at the opening meeting Monday, Jan. 23.

THE GAS LINE

By John T. Schaefer

This Beer Business

WHO WANTS BEER? I haven't been aware of any acute shortage of that beverage here in Detroit, but apparently the commercial refrigeration industry wants it in a bad way. One important firm in that field which I visited just before the presidential election, was 100 per cent for Roosevelt just because he gave greater promise of bringing back beer.

Anticipating early legalization, several firms have developed special beer cooling equipment. Fedders Mfg. Co., for instance, has just brought a new "Mobile Bar" electric beverage cooler which accommodates both bottles and barrels.

ENGINEERS of the Liquid Cooler Corp. also have an eye on prospective beer cooling business, and have redesigned their instantaneous beverage cooling unit to suit. Previous coolers used a tubing with a cross-section like the figure 8. This produced a high velocity of the beverage, but proved to be a disadvantage with beer, because it came out of the spigot so fast that a glass of beer was mostly foam. D. H. DOLISON, sales manager, announces that new models use a plain oval tubing, giving approximately the same heat transfer surface, and less velocity of the beverage.

• • •

Second Application of the Heat Pump

PAUL O. PENN, Detroit representative of the Penn Electric Switch Co., visited offices of the NEWS last week to collect some industry information, tell stories of duck-hunting expeditions, and incidentally to report what we believe to be the second installation in this country of the reversed refrigeration cycle.

ALBERT PENN, his older brother and president of the Penn Electric Switch Co., has just installed such a system to heat his Des Moines home this winter.

Without going into the highly technical details of the reversed refrigeration cycle (sometimes called the heat pump), let me refer you to more capable authorities on the subject:

A. R. STEVENSON, well-known General Electric engineer, can show very convincingly, with pencil and paper, how the heat pump will actually deliver more B.t.u.'s of heating effect than the equivalent (in B.t.u.'s) of power input. It's his pet hobby, and he likes to talk about it. His explanation of the process was published in the Feb. 10 issue of the NEWS.

• • •

Field Experience

R. E. KEYES, chief engineer of the Cooling and Air Conditioning Corp., described the system before the Cleveland conference on air conditioning last spring (see March 23 *Engineering Section*). He speaks with a background of actual experience, since his company installed the reversed refrigeration cycle in the Southern California Edison Bldg., Los Angeles.

H. L. DOOLITTLE, chief designing engineer for the Southern California Edison Co., supervised the installation there (see description in the March 9 *Engineering Section*). Last winter's performance was so successful that Mr. Doolittle has announced plans to heat the entire building with the system this coming winter (Nov. 2, *Engineering Section*).

A. D. McLAY, Detroit Edison engineer, explained the system before the Great Lakes Power Club last February. Mr. McLay's simplified diagram of the system is reproduced below in this column.

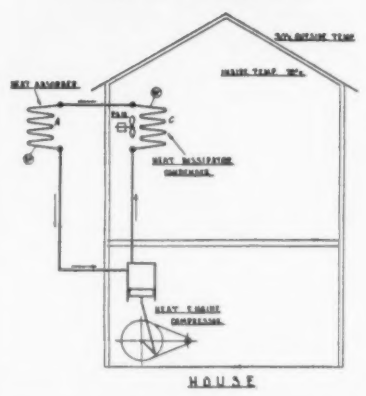
• • •

Here's the Idea

These men would point out that the function of any refrigerating system is to move a quantity of heat from one place to another. In a household refrigerator, heat is pumped from the box to the outside. With a heat pump the opposite is true: heat is pumped from the outside into the box—the box in this case being a house.

Although we seldom think of winter air as a source of heat, it can be shown that it actually contains an abundance of heat. With respect to the absolute zero of –460° F., outside air at 30° F. is comparatively warm. Indoor air at 70°

Simple Diagram



Detroit Edison's Mr. McLay explains the heat pump with the above diagram, showing the evaporator of a refrigerating system placed outside the house.

is relatively close on the absolute scale to outdoor air temperatures. A heat pump simply picks up heat outdoors and brings it inside.

When PAUL PENN remarked that his brother has installed a heat pump, I was naturally interested. The subject has attracted keen attention at technical discussions, but known installations totaled one—that in Los Angeles.

Unlike the Los Angeles installation which extracts heat from the outside air, Mr. Penn's system will extract heat from a well of water in his back yard. About 48 tons of ice will be frozen during the winter in this well, 9 ft. in diameter and 24 ft. deep.

One of my questions was "how will you prevent the expansion of freezing water from breaking up the cooling coils and tank?" Paul Penn replied that the tank was built of concrete, reinforced with steel. The estimated strength of materials was doubled to give a safety factor of 2.

Operating in the basement of the house is a 3-ton Universal Cooler condensing unit from which heat will be distributed through the building. A conventional heating system is available to supplement the heat pump when capacity of the latter is reduced by extremely low outdoor temperatures. Both are under complete control by Penn Electric switches, of course.

When next summer rolls around, Mr. Penn will have a nice cold supply of ice buried in his back yard from which cold water can be circulated to cool his house. Augmenting this will be the 3-ton refrigerating machine.

Foreseeing a new type of electrical load, the local utility is cooperating in the experiment by offering a preferential rate for the heat pump system.

It has always seemed a shame that we should expend so much energy combatting the cold during the winter, when a little of that cold stored up would be mighty pleasant in the summer. Mr. Penn has a plausible solution, it seems.

• • •

Cabinets Done in Aluminum

AN ALUMINUM-CLAD refrigerator cabinet is being placed on the market by the Sears Corp., Shelbyville, Ind., DON BALLMAN, assistant sales manager, writes. The cabinets use Insulite insulation, flanked on each side by a synthetic Insulite hardboard panel. Thin sheet aluminum is then fastened to both sides of the structure, finishing the cabinet inside and out with aluminum.

Features claimed for the construction are reduced weight, rust-proof qualities, reduced moisture condensation in the insulation, and novel appearance. Further details will be forthcoming.

• • •

Exhibiting Zerolite

Pleased with his company's development of Zerolite, R. S. HEMMINGSEN, Detroit district engineer for Johns-Manville, called at our offices last week to show me a sample. The new insulation, 96 per cent Rock Wool and 4 per cent water-resistant binder, is offered in bulk or wrapped in slabs to suit.

Designed particularly for household cabinets, and priced to enter the competitive market, Zerolite will find a place in the industry, Mr. Hemmingsen declares.

• • •

Buffalo News

MILTON F. BONEBERG, all-around refrigeration mechanic and manufacturers' representative in Buffalo, reports that business is slow right now. He looks for a substantial improvement in the spring, however.

Mr. Boneberg was the organizer of the National Society of Refrigeration Service Engineers, an organization which started with a flourish about two years ago and subsequently lanquished and died out because of lack of financial support.

Something new in compressors is reported by Mr. Boneberg. GORDON T. CASWELL, refrigeration engineer formerly with Mechana-Kold and All-American Mohawk, has developed a compressor which embodies both the rotary and reciprocating principles, and has only two moving parts.

With an ⅛-hp. motor it is supposed to be able to handle cabinets in the larger household sizes. A year's test gives an average running time of 17 to 20 per cent, Mr. Boneberg writes.

Breweries Will Use Small Machines

(Concluded from Page 1, Column 4)

Co., one-time thriving architectural firm which specialized in the design and erection of complete, custom-built breweries. Their plants were built in many sections of the country, also in Canada and Porto Rico.

In 1916, when prohibition loomed, the two men collaborated in the organization of the Detroit Ice Machine Co. which, incidentally still has several other men who were connected with Huetteman & Cramer.

A flood of inquiries from prospective brewery operators has revived their interest in the subject, and set them to estimating new plants.

Of the 21 breweries which served Detroit before the war, only four or five now remain in operating condition. Detroit's thirst will be far from satisfied by the capacity of these few plants, Mr. Bright states.

He estimates that the return of the brewing industry would start $50,000,000 in circulation within a year, just in Detroit.

Federal tax income, figured on the basis of taxes levied before prohibition, should approach $500,000,000 annually, he prophesies.

Among the interesting predictions made by Mr. Huetteman was that the return of beer will help to popularize the larger sizes of household refrigerators. A householder will want a cabinet large enough to hold a small ⅙-barrel can of beer, he says.

Instead of wooden beer cases, paper cartons will be developed to hold the bottles, he believes. "Cartons can easily be disposed of, and will eliminate repair costs which were considerable with the old-time beer cases."

Brewing developments in foreign countries, and new American technique in line production methods will be applied to the new type of brewery, Mr. Huetteman declares. The buildings will be taller, more compact, occupying much less ground area. The brewing process will use the force of gravity to bring the beer down through successive treatments.

Fermentation will be accomplished with the vacuum method, and at a higher temperature, with the result that the total process will take from three to four weeks, instead of three to four months under old methods. High-speed bottling methods, recently developed for soft drinks, will be adopted. Production costs will be reduced in the neighborhood of 50 per cent, he avers.

Unit coolers, chilled water instead of brine, welded tanks, and insulation of tanks instead of entire cellars, will contribute to increased efficiency of the new plants, Mr. Huetteman opines.

PORTABLE AIR WASHER ANNOUNCED BY H. M. SHEER

QUINCY, Ill.—H. M. Sheer Co. here is introducing a new portable air humidifier and washer at a list price of $18.50, according to G. H. Williams, treasurer of the company.

According to the manufacturer, the Pep-Aire unit will wash all air in an average room 2½ times per hour. In appearance, the humidifier resembles an inverted pan, topped by a metal latticed grating. Its diameter is 14 in., its height, 12 in.

Air is drawn in through the latticed grating at the top, and is passed through a film of water which cleanses and filters it. Air then passes through a vapor chamber where it is saturated with moisture.

The variable speed motor is controlled without use of electrical contacts, and moisture output is regulated by a screw adjustment. Current consumption is estimated at 14 watts. The unit is finished in brown.

ICE CREAM CONCERNS BLOCK DETROIT CODE

(Concluded from Page 1, Column 5)

Higham, Universal Cooler engineers, and Mr. Jolly.

Named on the large machine committee are A. C. Wallich, Detroit branch manager of Carrier Corp.; A. G. Loeffel, Detroit City Service Co.; E. J. Mueller, Detroit representative of Vilter Mfg. Co.; George B. Bright, consulting engineer; and O. F. Stauder, Westerlin & Campbell, York representative.

The committee on ice cream cabinets and commercial refrigeration includes J. W. Quaine, service manager for Detroit Creameries; Theodore Hoye, Borden Farm Products Co.; W.. J. Geissman, Fairmont Creamery Co.; and Roger I. Marquis, Borden attorney.

Leading the opposition of ice cream companies was Borden's attorney, Mr. Marquis. He claimed that provisions in the proposed code which require city permits for alterations and repairs would subject ice cream companies to unnecessary hardships because they are continually installing and removing ice cream cabinets from the premises of small ice cream vendors. The ordinance would require ice cream cabinets to have the same safeguards as large equipment, he believes.

Mr. Marquis and others also questioned the legality of adopting certain provisions of the A.S.R.E.—A.S.A. Standard Refrigeration Code "by reference" as the proposed ordinance does in a clause on construction, location, and operation.

The meeting was attended by the following: Geoffrey Strelinger, Kelvinator Sales Corp. of Detroit; E. E. McEwan, Frigidaire service manager in Detroit; H. J. Walker, Jr., Frigidaire branch manager. H. M. Williams, Frigidaire Corp., Dayton; E. A. Seibert, Kelvinator service manager; John Wyllie, Kelvinator Corp.

Theodore Hoye and R. C. Hanley of Borden Farm Products Co.; W. J. Geissman and Ted Van Maldegh of Fairmont Creamery; Roger I. Marquis, Borden attorney; J. W. Quaine, Carl F. Sielaff, and Oliver Spaulding of Detroit Creamery; Glenn Muffly, National Electrical Manufacturers Association, New York City; Carlos Jolly, General Motors Corp.; C. C. Spreen, consulting engineer.

R. H. Baum and W. W. Higham of Universal Cooler Corp.; J. T. Schaefer, ELECTRIC REFRIGERATION NEWS; F. G. Ell, Greater Detroit Building Association; Theodore Weigler, Detroit City Gas Co.; Lester M. Culver, Employers Association of Detroit; W. Grant; G. S. Goldwater, Thomas Heter, Hartford Steam Boiler Inspection and Insurance Co.; F. G. Legg, department of health.

George B. Bright; S. F. Maine, Freeman Dairy Co.; R. C. Loughead, Michigan Inspection Bureau; W. G. Gutsch and R. G. Rowland of Stroh Products Co.; Carl Wells, Detroit Real Estate Board; John L. Lovett, Michigan Manufacturers Association; and Lester C. Batdorff, Detroit Real Estate Board.

GOVERNMENT LABORATORY IS AIR CONDITIONED

WASHINGTON, D. C.—To control air conditions in its study of fertilizer distributing machinery, the Bureau of Agricultural Engineering has just completed the construction of a laboratory on its experiment farm, in Arlington County, Va., equipped with air-conditioning machinery for automatic control of temperature and relative humidity.

PRODUCTION INCREASED ON CROSLEY RADIOS

CINCINNATI — The Crosley Radio Corp. here, has practically doubled its payroll since last month, and is continuing to add workers to its staff in stepping up production of radio receivers. The company is aiming to produce 20,000 sets a week.

CLEVELAND MEN DESIGN 'BRECO' AIR CONDITIONER

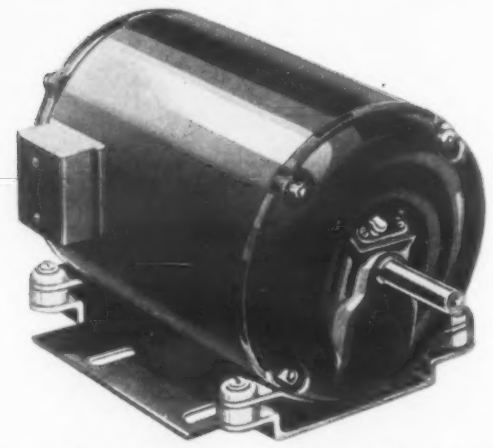
CLEVELAND HEIGHTS, Ohio—Now ready for distribution is a new humidifier—the Breco air conditioner—manufactured by the Barrett Regulation Engineers Co., Inc., of this city.

The new unit is adaptable for use as a portable humidifier, if use is made of the 2½-gal water reservoir with which it is equipped, or as a stationary unit connected to city water inlets.

Provision has been made for adaption of the appliance as a room cooler, using ice during summer months, or it may be employed merely for air circulation during the warmer season, according to J. M. Barrett. All air passing through the machine, when the latter is used as a humidifier or room cooler, is cleansed, says Mr. Barrett.

A float control and overflow device are standard equipment on the Breco unit, as is an adjustable air scenter. Dimensions of the machine are: height, 22 in.; width, 20 in.; and depth, 9 in. Its weight is approximately 75 lbs. Power input is 30 watts. The unit's cabinet is available in any color.

Long, Carefree Service



A new member of the famous "RED BAND" motor family

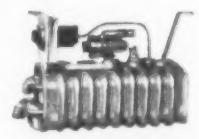
A Big Feature of Howell's Built-in Capacitor Motor

A simplicity of parts is the answer. When Howell engineers built the capacitor inside the motor frame, they also simplified construction. No commutator, no wire-wound rotor, nothing to get out of adjustment on these fractional horsepower motors.

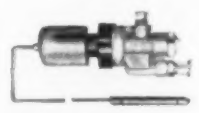
This new motor gives you satisfactory and economical service over a long period of time with a minimum of attention. It starts smoothly and quietly, is quiet in operation, and has a liberal overload capacity. This is why it should be your choice for electric refrigerator and other home appliance application.

Both horizontal and vertical types are offered, with rubber or rigid mounting on the horizontal models. Also stators and rotors for built-in equipment.

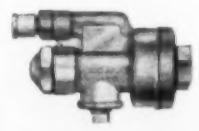
HOWELL ELECTRIC MOTORS CO.
HOWELL, MICHIGAN



Fedders Dry Expansion Evaporator



Fedders Thermostatic Expansion Valve



Fedders Automatic Expansion Valve

ANNOUNCEMENT

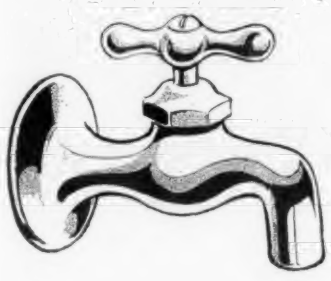
To further serve the electric refrigeration trade in the Detroit territory, we are glad to announce our appointment as Distributors for the complete line of

FEDDERS
Electric Refrigeration Equipment and Appliances

Our complete stock of Fedders domestic and commercial equipment includes cooling units, non-frost evaporators, automatic and thermostatic expansion valves, filters and dehydrators.

W. C. DU COMB CO., Inc.
6335 East Palmer Ave. Detroit, Mich.

FEDDERS announce



A COMPLETE LINE of 1933

FAST FREEZING Dry Expansion Domestic Evaporators

● The complete new 1933 line of Fedders Dry Expansion Domestic Evaporators now offers the industry—

FAST FREEZING
DEFROSTING MINIMIZED
COMPACT EVAPORATOR DESIGN
CONTINUOUS TUBE CONSTRUCTION
2, 3, 4, 5 and 6 TRAY MODELS

Refrigerant flows through one continuous seamless copper tube. Refrigerating tubes lie above and below every tray sleeve.

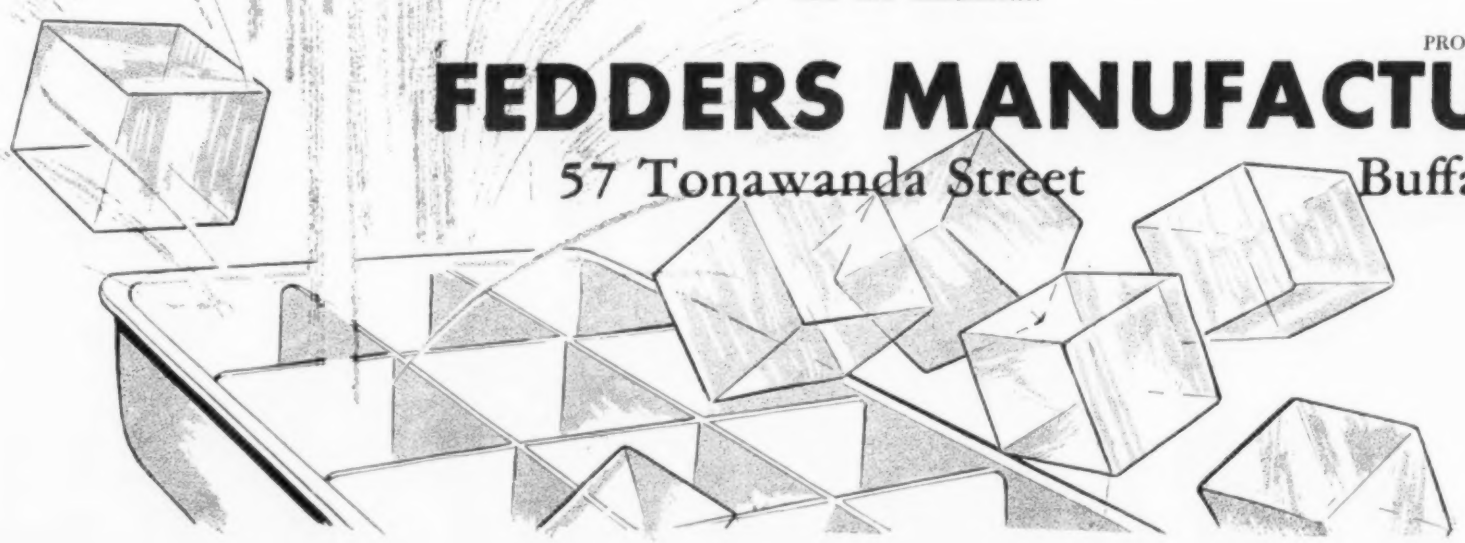
Continuous tube design completely eliminates all possibility of unit becoming oil bound. As long as the compressor operates, the refrigerant and oil can't do anything else but go through.

Copper radiating fins on top and both sides provide generous vertical surface assuring low box temperature under extreme conditions of high atmospheric temperature.

Write for catalog giving complete specifications, tests and dimensions.

Equipped with FEDDERS Automatic Expansion Valve
Easily set for required pressure.
Maintains accurate control.

PROVIDES A COMPLETE LOW SIDE ASSEMBLY



FEDDERS MANUFACTURING CO.

57 Tonawanda Street Buffalo, New York

Design Factors Given For F-12 Machines

Piston Displacements, Refrigerating Effects, And Pressures of Common Refrigerants

By R. J. Thompson, Kinetic Chemicals, Inc.

THE various liquefied gases commonly used as refrigerants have widely different operating characteristics and chemical, physical, and thermodynamic properties; such as, boiling point, pressure, volume, density, heat content, entropy, chemical stability, and inertness to metals. These properties make it necessary that the piston displacement, pipe lines, evaporator, regulating valve, and pressure control mechanism be so physically proportioned that maximum B.t.u. capacities and efficiencies be obtained. The refrigerating system must be lubricated properly and suitable construction material selected.

Pressures required to liquefy the refrigerant vapor affect the design of the system; the volume and heat content of the refrigerant vapor from the evaporator determines the theoretical piston displacement of the compressor; and, the heat value and volume of the liquid refrigerant affect the quantity of liquid refrigerant to be circulated through the regulating valve.

TABLE I—RELATIVE VALUE OF REFRIGERANTS UNDER STANDARD TON CONDITIONS

	Freon CCl_2F_2	Carbon Dioxide CO_2	Ammonia NH_3	Methyl Chloride CH_3Cl	Isobutane $(CH_3)_3CH$	Sulphur Dioxide SO_2	Ethyl Chloride C_2H_5Cl
Boiling point °F.	-21.7	-108.4	-28.0	-10.6	13.6	14.0	53.96
Gage pressure lbs. per sq. in., 5° F.	11.81	319.7	19.57	6.19	-1.62	-2.88	-10.05
Gage pressure lbs. per sq. in., 86° F.	93.2	1024.3	154.5	80.83	44.8	51.75	12.4
Heat content of saturated vapor in 5° evaporator—B.t.u. per lb.	78.79	102.14	613.35	199.76	162.0	183.49	165.4
Heat content of liquid leaving 86° F. condenser B.t.u. per lb.	27.72	45.45	138.9	59.34	50.5	42.12	23.1
B.t.u. refrigerating effect per lb.	51.07	56.69	474.45	140.42	111.5	141.37	142.3
Lbs. of refrigerant per minute	3.916	3.528	.4215	1.424	1.794	1.414	1.405
Cu. ft. of liquid per lb.—86° F.	.0124	.0267	.02691	.01793	.0294	.01184	.01822
Cu. in. of refrigerant per minute	83.9	162.8	19.6	44.1	91.1	28.9	44.2
Cu. ft. of vapor per lb.—5° F.	1.485	.2673	8.150	4.530	6.41	6.421	17.06
Cu. ft. piston displacement per minute	5.815	.943	3.436	6.452	11.497	9.084	23.977
B.t.u. refrigeration per cu. ft. piston displacement	34.4	212.0	58.2	31.0	17.4	22.0	8.35

In Table I will be found standard ton comparative data of seven of the principal refrigerants with respect to the theoretical displacement of the compressor, quantities of liquid refrigerant to be vaporized, and pressures on the high and low pressure sides of the system. The values for standard ton conditions (200 B.t.u. per minute) are for an evaporator temperature of 5° F. and a temperature of 86° F. in the saturated portion of the condenser, not providing for the superheat of vapor or the subcooling of the refrigerant liquid.

Piston Displacement

When designing refrigeration compressors, the refrigerants with high latent heats of vaporization and low values for specific volumes of vapor require the smaller piston displacement, while refrigerants with high values for specific volumes of vapor and low latent heats of vaporization will necessitate a greater piston displacement.

For standard ton conditions the cu. ft. displacement of the compressor will be dependent upon the B.t.u. refrigerating effect per lb. of the refrigerant, and the volume of the vapor per lb. In Table II is given a comparison of piston displacements required for the various commonly used refrigerants, using Freon as a basis of comparison. (5.815 cu. ft. per minute—100%.)

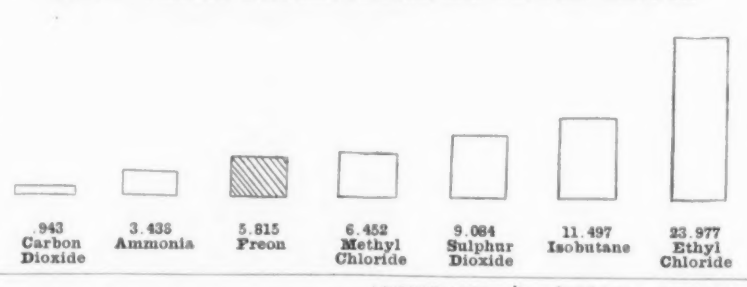
The theoretical piston displacement per minute per standard ton for Freon charged compressors falls between ammonia and methyl chloride, and is shown graphically in Fig. 1.

Regardless of the fact that Freon has a low B.t.u. refrigerating effect per lb., or less than one-ninth of that of ammonia which has the highest B.t.u. refrigerating effect per lb., the piston displacement of a Freon charged compressor is only 69 per cent greater. The B.t.u. refrigerating effect per lb. of Freon is approximately one-third of that of methyl chloride, although the Freon charged compressor has a piston displacement of approximately 10 per cent less than that of methyl chloride.

TABLE II—COMPARISON OF PISTON DISPLACEMENTS

Refrigerant	Cubic foot piston displacement per minute	Relative Displacement	Approximate increase or decrease in displacement when using Freon: Increase	Decrease
Carbon Dioxide	.943	16%	517%	...
Ammonia	3.436	59%	69%	...
Freon	5.815	100%	...	...
Methyl Chloride	6.452	111%	...	10%
Sulphur Dioxide	9.084	156%	...	36%
Isobutane	11.497	198%	...	49%
Ethyl Chloride	23.977	412%	...	76%

FIG. 1—PISTON DISPLACEMENT, CU. FT. PER MINUTE



The volume per lb. of the refrigerant vapor, together with the B.t.u. refrigerating effect per lb., determines the piston displacement, and since Freon has a very low volume per lb. of vapor, the comparatively low heat value is compensated.

The standard ton comparisons and calculations represent conditions for large commercial apparatus with water-cooled condensers but do not represent conditions for small air-cooled compressors. Thus, the theoretical calculations must not be taken as representative for small household water and air-cooled compressors.

Freon may be used in either water-cooled or air-cooled compressors due to the low head pressures and exceedingly low compression temperatures. The low temperature of adiabatic compression of Freon (109.5° F.) requires less condensing surface for the removal of superheat than is needed for the other refrigerants listed in Table II, which are in common use.

The actual piston displacement for large commercial compressors will be approximately 15 to 25 per cent (small household compressors—25 to 125 per cent) more than the theoretical values and will be dependent upon evaporator pressure or temperature, capacity of compressor in tonnage, compressor speed, refinement in design, design of valves, compression clearance, elimination of restrictions, etc.

The change in piston displacement in order to use Freon may be effected in any one or all of the four following ways, such as: increasing or decreasing the bore, the stroke, the speed, or changing the number of cylinders.

Engineering design, manufacturing methods in practice, or convenience, will determine whether the bore or the stroke, or both are to be changed, as it is desirable to reduce the cost of changing the patterns, forging dies, and machine tools to a minimum. As a general rule, patterns and castings for cylinders and pistons may be changed more readily and with less expense than the cost of changing crankshaft and connecting rod forging dies and machine tools.

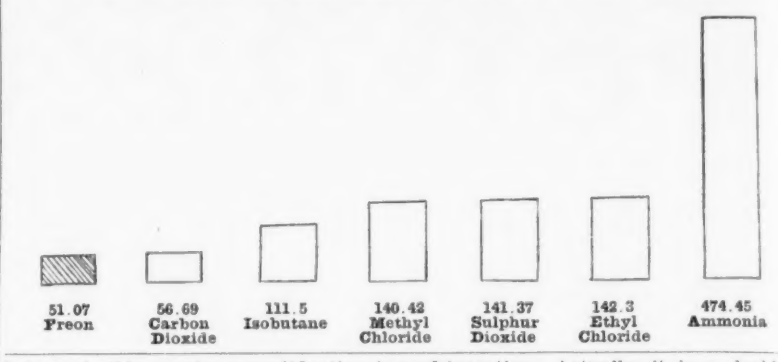
To reduce or increase the speed of a compressor in order that the same compressor body may be used with Freon is not recommended, as the pulley sizes and belt speeds would not be in agreement with good design, proper performance or engineering and operating practices.

Also, the existing intake and discharge valves of such a compressor may have been designed for established densities of vapor and vapor velocities of refrigerants other than Freon, and any appreciable change from those limits of performance will influence the volumetric efficiency of the compressor.

It is not recommended to charge with Freon an already existing compressor which was designed and satisfactorily operated with other commonly used refrigerants and expect the same B.t.u. capacity for the following five reasons:

1. Displacement will be too great or too small.
2. Quantity of Freon through the regulating valve will be too great or too small.
3. Head and back pressures will require recalibration of control mechanism.
4. Mineral lubricating oil and Freon being miscible require a modification in design of the compressor and proper oil charge.
5. Dense Freon vapor requires the elimination of all restrictions through valves and lines.

FIG. 2—B.T.U. REFRIGERATING EFFECT PER POUND



Amount of Refrigerant To Be Evaporated

The refrigerating effect per lb. of refrigerant under standard ton conditions as stated in Table I, determines the amount of refrigerant to be evaporated per minute. The refrigerating effect per lb. is the difference in B.t.u. content, of the saturated vapor leaving the evaporator (5° F.) and the liquid refrigerant just before passing through the regulating valve (86° F.).

The B.t.u. refrigerating effect per lb. of the various refrigerants is shown graphically in Fig. 2.

While the B.t.u. refrigerating effect per lb. directly determines the number of lbs. of refrigerant to be evaporated in a given length of time to produce required results, it is much more advisable to consider the volume of refrigerant required rather than the weight of refrigerant.

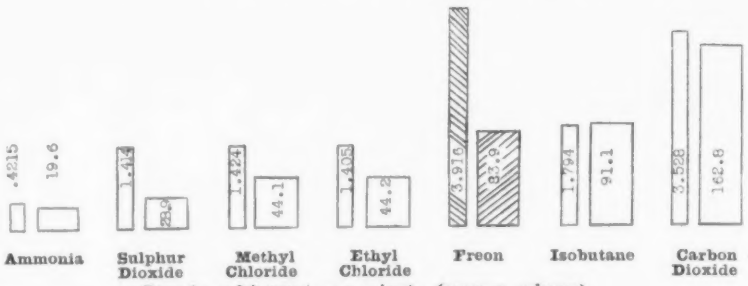
By considering the volume of refrigerant necessary to produce standard ton conditions, it is possible to make comparisons between Freon and the other refrigerants so as to provide for the reproportioning of liquid orifice sizes in the regulating valves, sizes of liquid refrigerant lines, etc.

A refrigerant must not be judged only by the fact that it has high or low refrigerating effect per lb., but the volume per lb. of the liquid refrigerant must also be taken into account to arrive at the volume of refrigerant to be vaporized.

While Freon has a relatively low refrigerating effect, this is not a disadvantage, as it merely indicates that more liquid refrigerant must be circulated to produce the desired amount of refrigeration. Actually, it is a decided advantage to circulate large quantities of liquid refrigerant as the greater volumes required will permit the use of less sensitive, more accurate, and more positive operating and regulating mechanisms with less critical adjustment.

Refrigerants with high B.t.u. refrigerating effects are not always desirable especially for household and small commercial installations, owing to the small amount of liquid refrigerant in the system and the difficulty encountered in accurately controlling the flow of such small quantities of liquid through the regulating valve. For household and small commercial systems, the adjustment of the regulating valve orifice is most minute for refrigerants with high B.t.u. values.

FIG. 3—COMPARATIVE CIRCULATION REQUIRED



Pounds refrigerant per minute (narrow column)
Cubic inches refrigerant per minute (wide column)

TABLE III—VOLUME COMPARISONS FOR 1 TON OF REFRIGERATION

Refrigerant	Cubic inches per minute	Relative Volume	Approximate increase or decrease in volumes when using Freon: Increase	Decrease
Ammonia	19.6	23%	328%	...
Sulphur Dioxide	28.9	34%	190%	...
Methyl Chloride	44.1	53%	90%	...
Ethyl Chloride	44.2	53%	90%	...
Freon	83.9	100%	...	...
Isobutane	91.1	109%	...	8%
Carbon Dioxide	162.8	194%	...	48%

TABLE IV—PRESSURE-TEMPERATURE CHART OF COMMON REFRIGERANTS

Refrigerant	Temperature °F. -20	-10	0	10	20	30	40	50	60	70	80	90	100
Ethyl Chloride	24	22	21	19	16	12	8	2	2	5	10	15	20
Isobutane	15	11	6	0	4	8	12	18	24	31	39	49	59
Sulphur Dioxide	18	14	9	3	3	7	13	19	26	35	45	56	70
Methyl Chloride	6	0	4	9	14	21	28	37	47	59	72	88	103
Freon	1	5	9	15	21	29	37	47	58	70	84	100	117
Ammonia	4	9	16	24	34	45	59	74	93	114	138	166	197
Carbon Dioxide	206	247	294	347	407	475	551	635	730	834	950	...	...

Above line—inches mercury below atmospheric.
Below line—pounds per square inch gage.

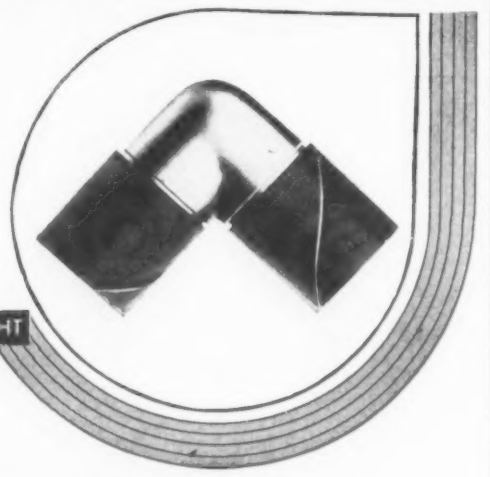
The volumes of liquid refrigerants to be circulated through the regulating valve are shown graphically in Fig. 3 together with the lbs. of refrigerants required to produce the same refrigerating effect.

In the Table III is given a comparison in volumes of refrigerants required to be passed through a regulating valve to produce one ton of refrigerating effect using Freon as a basis of comparison (83.9 cu. in. per minute 100%).

To determine orifice or liquid line sizes it will also be necessary to take into account operating and differentials in pressures as well as the volume of liquid refrigerant to be circulated. For example, large volumes of carbon dioxide are required because of its low refrigerating effect per lb., but because the high pressures existing in a carbon dioxide system tend to force more liquid through the regulating valve than would be the case with low-pressure refrigerants, more than offsets the advantage of volume of carbon dioxide.

The reverse of this sample will be true for refrigerants required in small volumes at low pressures. The best con-

(Concluded on Page 5, Column 1)



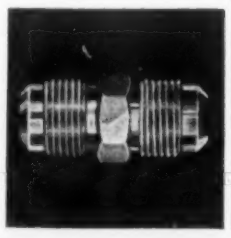
WHEN you specify Commonwealth Brass Seepage Proof Fittings you are always sure to get a perfect fitting...each tube-seat is protected in shipment from nicking, marring, or scarring by cardboard ferrules.

Care in shipment insures manufacturers of automatic refrigerating units exact fits and saves time in installation costs...a worthwhile item and a very good reason why Commonwealth fittings should always be used.

Prompt shipments are made from our complete stock of standard fittings...special fittings upon request.

Our Catalog No. 36 is a complete exposition of the entire Commonwealth line.

COMMONWEALTH BRASS CORPORATION
COMMONWEALTH AT G. T. R. R.
DETROIT • MICHIGAN



THE GREAT SAHARA

is NO DRIER than ANSUL ANHYDROUS ANALYZED SULPHUR DIOXIDE

ANSUL CHEMICAL COMPANY • MARINETTE • WIS

DESIGN FACTORS FOR FREON COMPRESSORS

(Concluded from Page 4, Column 5)

dition would be to use a refrigerant in large volumes and at comparatively low pressures. Freon is very suitable in this respect.

The question of orifice sizes and liquid line sizes may be determined by the study and application of formulas for the flow of liquids, considering pressure, velocity, density, and restrictions or form of orifice.

Pressure

Table IV gives the saturated vapor pressures in lbs. per sq. in. gage of Freon and the other refrigerants. A study of the table will show that high and low pressure control mechanism will need to be modified when using Freon, as the pressures vary somewhat from those of other refrigerants.

Head Pressures

In Table IV, the pressures have been shown for the various refrigerants based upon the temperature of the liquid itself. In practice this does not correspond to the room or air temperature for the reason that an air-cooled condenser operates at a temperature above the temperature of the air in the room, and with a water-cooled condenser the refrigerant may be at a lower temperature than the air in the room.

If there is poor circulation of the condensing medium through the condenser, oil or dirt on the condenser surfaces, high operating back pressures, together with superheat from the compressor, it is likely that the temperature of the refrigerant will be from 15 to 40° F. above the condensing medium temperature. An average of 25° F. should be added to the condensing medium temperature and this is the temperature that should be used in computing average operating head and condensing pressures.

Also, certain types of condensers are more efficient than others and the temperatures and pressures may rise higher in a condenser having insufficient heat dissipating surface than a condenser having a larger or more effective surface.

Operating head pressures will vary with the temperature of the condensing medium, depending on whether an air- or water-cooled condenser is used, and also dependent on operating back pressures.

Assuming an air- or water-cooled condenser of average design and efficiency, the operating head pressures in lbs. per sq. in. gage may be closely approximated by multiplying the temperature of condensing medium in degrees F. by the head pressure factor for various back pressures. See Table V. These factors have been obtained from results of tests on small household and commercial compressors, but will apply in general to larger compressors.

TABLE V—PRESSURE FACTORS

Back Pressure Lbs./Sq. In. Gage	Temperature °F.	Head Pressure Factor Air Cooled	Water Cooled
0	-21.7	1.33	1.30
5	- 9	1.44	1.35
10	2	1.55	1.40
15	11	1.66	1.45
20	18	1.77	1.50
25	26	1.87	1.55
30	32	1.96	1.60
35	38	2.04	1.65
40	43	2.11	1.70

Back Pressures

Freon-charged compressors operate at low but positive back pressures which will permit of high volumetric efficiency. This low but positive pressure prevents moisture laden air from accidentally entering the system which would cause the following adverse conditions: (1) reduction of the coefficient of performance by the air lodging in the condenser and causing high head pressures and temperature, and (2) the moisture freezing out as ice and interferring with the normal operation of the regulating valve.

Positive pressures permit of testing for leaks, locating the source of leak and correcting the leak, as it is extremely difficult to locate a leak if a refrigerant operates at a negative back pressure.

It is believed that outward leaks of refrigerants are better than inward leaks of air, assuming of course that the refrigerant is nontoxic, nonirritating, nonflammable, nonexplosive, not injurious to food, and will not cause a panic or fire hazard.

Table VI is not to be used for determining settings for low-pressure control mechanisms or expansion valve operation for systems charged with Freon or any refrigerant that is miscible with mineral lubricating oil. The reason for this is that the pressure temperature conversion table is for refrigerants without any oil in solution.

Since mineral oil and certain of the refrigerants are miscible, the boiling point of the solution changes and as a consequence the temperature at the various back pressures will be slightly higher, or, for the same temperature of refrigerant-oil solution the back pressure will be slightly lower. Also, the temperature of the refrigerant-oil solution at various back pressures will be dependent upon the amount of oil in solution with the refrigerant.

Gravity

For the proper design of float valve ball for use in the flooded system, either on the low-pressure side or the high-pressure side of the system, it is necessary to take into account the gravity of the liquid refrigerant. A comparison of the gravities of the various refrigerants at 5° F. is shown in Table VII.

TABLE VII

Refrigerant	Specific Gravity (5° F.)
Sulphur Dioxide	1.475
Freon	1.445
Carbon Dioxide	.985
Methyl Chloride	.980
Ethyl Chloride	.948
Ammonia	.660
Isobutane	.600

Since the specific gravity of Freon liquid is from 1½ to 2½ times greater than that of the other commonly used refrigerants, with the exception of sulphur dioxide, the float valve ball must be designed of the proper weight and buoyancy in order to positively control the operation of the liquid regulating valve.

The specific gravity of sulphur dioxide and Freon is practically the same, but since mineral oil and Freon are completely miscible, the specific gravity of the solution is lowered due to the low specific gravity of the oil, and as a result the float valve ball will need to be lighter and more buoyant (when using Freon), and similar in design to that used with methyl chloride, ethyl chloride, and isobutane.

Density

Saturated Freon vapor at 5° F. is approximately three times as dense as methyl chloride, approximately four times as dense as sulphur dioxide or isobutane, and approximately five times as dense as ammonia, at the same temperature. Table VIII is the saturated vapor densities of the various refrigerants at 5° F.

TABLE VIII—VAPOR DENSITIES OF REFRIGERANTS AT 5° F.

Refrigerants	Pounds Per Cu. Ft.
Carbon Dioxide	3.741
Freon	.6735
Methyl Chloride	.2209
Sulphur Dioxide	.1558
Isobutane	.156
Ammonia	.1227
Ethyl Chloride	.0586

The limits of Freon vapor or gas velocity in feet per minute through the suction line, suction valve, discharge valve, and discharge line, should be approximately as follows:

	Large Pipe Sizes (Large Tonnage)	Small Tubing Sizes (Household And Small Commercial)
Suction line	2750 to 3750	800 to 1800
Suction valve	2500 to 3500	750 to 1750
Discharge valve	4000 to 5000	2000 to 2500
Discharge line	3750 to 4750	1750 to 2250

The limiting velocities of Freon liquid through liquid lines are between 80 and 100 ft. per minute.

All restrictions to the free passage of Freon vapor should be eliminated or reduced as much as possible in order to obtain maximum operating efficiency. This will call for a design of intake and discharge valves to provide increased annular opening, and a close study of pressure volume diagrams. Any restrictions in lines, shut-off valves, condensers, etc. should be removed in order that pressure drops throughout the system be eliminated.

Lubrication

The lubrication of a Freon-charged compressor is similar to that of a compressor using a refrigerant that is completely miscible with mineral lubricating oil, such as methyl chloride. Since Freon and mineral oil are completely miscible, an oil of higher viscosity is required than when using a refrigerant that is not miscible with the lubricating oil.

The proper selection of a lubricating oil can only be made after having obtained a clear understanding of the physical conditions under which the compressor and system is to be operated. Factors which must be taken into account are, bearing loads, rubbing speeds, type compressor (enclosed or open frame), type compressor (air or water cooled), temperature of evaporator, type evaporator (flooded or dry expansion), etc.

With this group of factors which are quite variable, an almost endless number of combinations can be produced which will require lubricating oils of various characteristics.

It must be recognized that a small capacity, low-horsepower, slow-speed, enclosed type, air-cooled compressor operating a flooded evaporator at temperatures well below the freezing point of water, will function efficiently with a very light, low viscosity and low pour point oil.

While in contrast, a large capacity, high-horsepower, high-speed, water-cooled compressor using trunk type pistons or an open frame, operating a flooded evaporator well above the freezing point will require a higher viscosity and higher pour point oil.

Between these two extremes there will exist various combinations of conditions with the result that it is not possible or wise to recommend an oil of any particular viscosity, flash point, fire point, pour point, etc., to meet all of the various operating conditions.

For small domestic refrigerating systems of the enclosed type, an oil of 150 (for flooded systems) to 300 (for expansion systems) viscosity, flash point 350 to 425° F., fire point 390 to 475° F., and a pour point of -10 to -30° F., may be used with complete satisfaction considering the operating conditions.

For large air-conditioning compressors of the enclosed type, an oil of up to 900 viscosity, flash point approximately 475° F., fire point approximately 575° F., and a pour point of 0° to possibly 15° F., may be used.

Capacity and type of compressor (whether air cooled or water cooled) principally will determine the viscosity of the oil to be used, while the temperature and type of the evaporator (whether flooded or expansion) will determine the pour point. The flash and fire points must be consistent with good refining practices but they should be kept as high as possible to eliminate even a remote possibility of carbonization of oil in the presence of air or water or both.

The lubricating oil for use with Freon-charged compressors should be a straight run and properly refined mineral oil and obviously must not contain water, sediment, acid, soap, resin or any substance not derived from petroleum and must not form wax or gum in the presence of Freon. Also, the oil must not corrode any metal used in refrigeration construction.

The use of glycerine or ethylene glycol (not miscible with Freon) is not recommended, as glycerine is highly hygroscopic and in addition has the tendency to become gummy or produce a sticky sludge on surfaces when the compressor or system is idle or when the lubricant is heated.

Mineral lubricating oils must be thoroughly dehydrated, not because of any chemical reaction but for the reason that any moisture in the oil will freeze out and thus restrict the flow of refrigerant through the regulating valve.

The question may arise as to the manner in which the oil contained in the flooded evaporator will return to the compressor crankcase, and in the following will be given an explanation as to this question. As the evaporator absorbs heat and the gas bubbles rise to the surface of the Freon-oil solution, the oil film of the bubble is ruptured and these finely divided oil particles form a mist in the Freon vapor and are swept along by the gas stream formed by the ebullition of the refrigerant.

These oil particles or oil fog will blanket the Freon-oil solution to a height or thickness in the evaporator which may be predetermined by experiment and will be dependent upon evaporator temperature, capacity, design, location of oil vapor return tube in relation to Freon-oil solution and also the characteristics of the oil itself.

The Freon vapor which is being returned to the compressor will carry this oil fog through the suction line and return the lubricating oil to the compressor crankcase (closed type), cylinders (trunk or open frame type compressor) or oil interceptor, as drops of oil.

Oil logging of the flooded evaporator will occur, should the suction or oil fog return tube be placed too high above the surface of the boiling liquid refrigerant, which will permit the oil fog to settle back into the Freon-oil solution.

Frosting or sweating of the return line will occur, should the suction tube be placed too close to the surface of the boiling refrigerant where particles of liquid Freon may be splashed or drawn into and vaporized in the return line to the compressor. There will be no oil logging of evaporators of an expansion system due to the high velocity of refrigerant vapor or gas in the return line pushing along any oil particles.

Freon absorbs small quantities of mineral oil depending on the oil characteristics (pour point and viscosity), the temperature of the oil in the crankcase and the operating back pressure in the compressor crankcase, but unlike other refrigerants (other than hydrocarbon refrigerants) does not deposit the lubricating oil in the low side of the system and cause oil logging.

The figures given in Table IX will show the per cent by weight of Freon absorbed in 150 viscosity (-30° F. pour point) mineral oil at various back pressures and oil temperatures. More Freon will be absorbed by the oil at higher pressures and at lower temperatures, or visa versa. Lighter oils absorb less and heavier oils absorb more Freon than the oil used for illustration in Table IX.

During the off cycle of the compressor, the oil temperature is lowered and the back pressure is increased which will permit the Freon vapors to become absorbed by and condensed in the mineral oil. At the time the compressor starts operation, the back pressure in the low side crankcase is suddenly reduced with the result that the Freon in solution with the crankcase oil will boil out causing the lubricating oil to foam.

Should the system be overcharged with oil, this foaming oil will be scrubbed through the intake and discharge valves and the excess amount of oil in the crankcase will soon pass into the receiver and into the low side of the system.

When the compressor is charged with the proper amount of oil there will not be excessive splashing of oil by the eccentrics or crankshaft and the foaming of the oil will not cause faulty operation of the compressor or evaporator.

Small tonnage compressors using the splash system of lubrication which return the refrigerant vapors and oil direct to the compressor crankcase, may have oil level regulating devices or controls. Small capacity units designed for household installation should not be overcharged with oil and since this oil charge may be very easily controlled, there is no occasion for using oil level regulating devices.

The foregoing remarks apply to compressors where the Freon vapors return direct to the crankcase.

Enclosed compressors using trunk type pistons and pressure lubricating oil pumps will not cause any difficulty from foaming and scrubbing of oil, for three reasons: (1) solubility of Freon in the oil in the compressor crankcase is greatly reduced in this type of compressor; (2) oil splash or spray in the crankcase is reduced; and (3) no movement of refrigerant vapors through the crankcase and pistons to carry the oil particles in suspension.

When pressure lubricating systems are used, the oil pump should be placed at the lowest point, or priming devices should be provided, in order to keep pump primed with oil at all times.

In the larger tonnage machines certain builders prefer to use a semi-open-frame type of compressor wherein the refrigerant vapor will return direct to the cylinder block. By separating the crankcase from the cylinders the lubricating oil contained in the crankcase will have no contact with the Freon vapors and obviously, no foaming of oil will occur.

In this type of compressor a predetermined amount of lubricating oil must be added to the Freon liquid to provide for the proper lubrication of the pistons and valves or any device used to circulate the liquid refrigerant.

TABLE IX—PERCENTAGE, BY WEIGHT, OF FREON ABSORBED IN 150 VISCOSITY OIL

Operating back pressure lbs. per. sq. in. gage	Oil Temperature °F. 60	80	100	120	140	160
0	8.5%	6.5%	5 %	3.5%	2.5%	2 %
10	15 %	11 %	8 %	6 %	4.5%	3.5%
20	23 %	15 %	11 %	8.5%	6.5%	5 %
30	32 %	21 %	14.5%	11 %	8.5%	6.5%
40	44 %	27 %	18.5%	13.5%	10 %	8 %

Filters and Strainers

Freon, being a good solvent, has the ability of loosening and removing any and all factory dirt or scale that may be in the system, and eventually this dirt is deposited at the point of least vapor, liquid, or oil movement, or collected at and possibly close the regulating valve strainer or filter.

When the refrigerating system ceases to function, one should immediately examine the strainer or filter as scale is more often the cause of loss of refrigeration rather than water which has frozen out and closed the regulating valve.

Such a filter must be of a fine mesh screen and of sufficient area to prevent blocking in a short time and should be so designed as to be readily disassambled to permit cleaning. Any metal may be used for the filter or strainer as Freon is inert with respect to all metals used in refrigeration construction.

Construction Materials

Freon has no corrosive action upon the following metals or alloys which may be used without exception in the construction of refrigeration systems: aluminum, brass, cast iron, copper, Dural metal, bronze, galvanized iron, babbitt metal, lead, Monel metal, silver solder, steel, steel alloy, tin, tin lead solder, zinc, and tungsten.

Freon vapors or liquid even at the elevated temperatures found in a refrigerating system under the most adverse conditions, have no effect on the tensile strength or the per cent elongation of the metals.

It is not advisable to use any of the magnesium alloys in systems where water may be present, as corrosion will result, but fortunately such alloys are not used in refrigeration construction.

Packing and gasket materials vary widely in composition with the result that the safe use of such materials can only be determined after sufficient test.

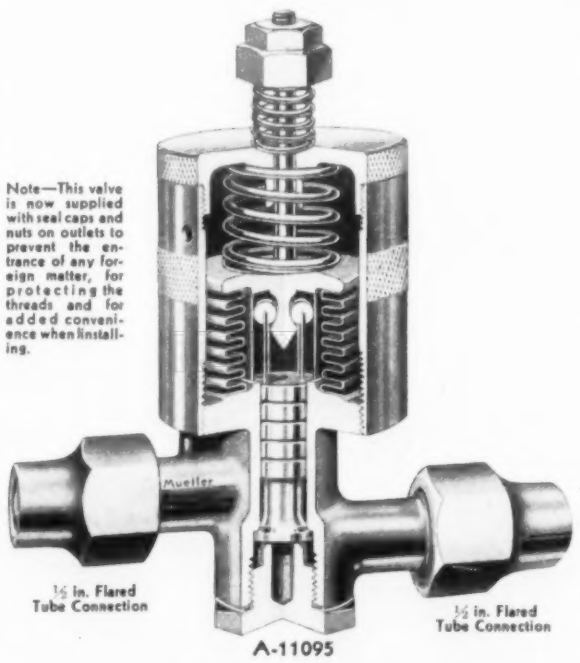
A rather broad specification for such materials is as follows: The loss on ignition and ash must be restricted to certain limits, the material must bend over a specified radius without cracking after having been aged at elevated temperatures in Freon, the material must not show an increase in thickness over a specified percentage before and after aging in Freon at elevated temperatures, the material must not show a loss in weight or any disintegration after having been exposed to liquid Freon; and the material must be uniformly compounded and good in appearance.

TABLE VI—EVAPORATOR PRESSURE-TEMPERATURE TABLE

	Evaporator Temperature -20° F.	-10	0	10	20	30	40
Ammonia	4	9.0	15.7	23.8	33.5	45.0	58.6
Freon	1	4.5	9.2	14.7	21.1	28.5	37.0
Methyl Chloride	6	0.0	4.0	9.0	14.0	20.5	28.0
Isobutane	15	11.0	6.3	0.2	3.5	7.6	12.2
Sulphur Dioxide	18	13.9	8.9	2.6	2.5	7.0	12.5
Ethyl Chloride	24	22.0	21.0	19.0	16.0	12.0	8.0

Below line—inches mercury below atmospheric.
Above line—pounds per square inch gage.

The New Mueller Two-Temperature Control Valve Will Maintain the Range in Temperature You Require for Refrigerator and Display Case or Cooling Cabinet



Note—This valve is now supplied with seal caps and nuts on outlets to prevent the entrance of any foreign matter, for protecting the threads and for added convenience when installing.

⅛ in. Flared Tube Connection

½ in. Flared Tube Connection

A-11095

This valve is so constructed that by merely turning the outside knurled case a service man can raise or lower the temperature without danger of losing the differential which has been previously set.

The differential is built into the valve and cannot be changed.

The temperature range may be changed without the necessity of a recheck or numerous visits of the service man.

Simplicity of construction insures a long and trouble proof service.

The snap action feature prevents seat erosion and assures uniform performance.

The body is a brass forging and is therefore seep proof and free from defects.

NOTE—When Ordering Specify "Cut-In" and "Cut-Out" Readings

Mueller Brass Co.
PORT HURON, MICHIGAN

Mueller Brass Co. Valves and Fittings are approved by the Underwriters' Laboratories of Chicago

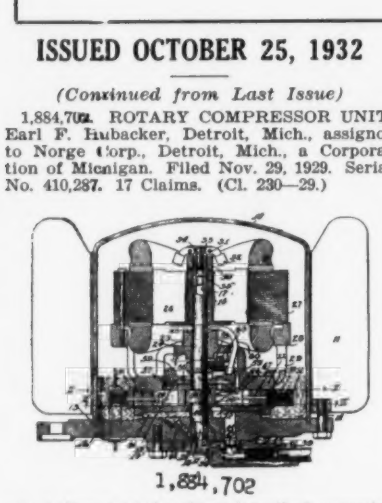
We manufacture a complete line of valves and fittings and can supply your every requirement

REVIEW OF LATEST PATENTS GRANTED

ISSUED OCTOBER 25, 1932

(Continued from Last Issue)

1,884,702. ROTARY COMPRESSOR UNIT. Earl F. Hubacker, Detroit, Mich., assignor to Norge Corp., Detroit, Mich., a Corporation of Michigan. Filed Nov. 29, 1929. Serial No. 410,287. 17 Claims. (Cl. 230—29.)



1,884,702

1. A device of the class described comprising a closed casing, a rotary compressor, a driving shaft therefor and a driving motor mounted on said shaft, the compressor, shaft and motor being enclosed in said casing, a relief passage extending avially through said shaft, a centrifugal unloading valve controlling said relief passage, a suction supply passage to said compressor having a branch in communication with the relief passage in said shaft, and a check valve in said suction supply passage and anteriorly located relative to said branch.

1,884,793. EVAPORATOR. James McKeague, Chicago, Ill., assignor, by mesne assignments, to Zerozone, Inc., Chicago, Ill., a Corporation of Delaware. Filed March 3, 1930. Serial No. 432,920. 4 Claims. (Cl. 62—126.)

3. In a mechanical refrigerating unit, the combination with a boiler drum in which a liquid refrigerant is maintained at a certain height by a float controlled valve, of a suction pipe in said drum which is partly submerged in said liquid and contains a skimming port in its submerged portion just below the surface of said liquid, a baffle attached to said pipe and including a horizontal portion located beneath said port and vertical portions disposed on opposite sides of said port, said baffle forming a basin which is closed at the bottom and on two sides by said baffle and on one end by said pipe, said liquid filling said basin to permit its being skimmed through said port.

1,884,939. REFRIGERATING APPARATUS. Karl Alexander Wessblad, Stockholm, Sweden, assignor, by mesne assignments, to Electrolux Servel Corp., a Corporation of Delaware. Filed Aug. 26, 1924, Serial No. 734,334, and in Sweden Sept. 22, 1923. 14 Claims. (Cl. 62—119.5.)

1. Refrigerating apparatus comprising a generator, an absorber, a refrigerant condenser, an evaporator, all connected by conduits to form a closed system and a second system consisting of a closed hermetically sealed vaporization-condensation cycle comprising a chamber and an air-cooled condenser situated above said chamber and connected thereto, said second system containing a volatile liquid and said refrigerant condenser of the first-mentioned system being contained within said chamber of the second system.

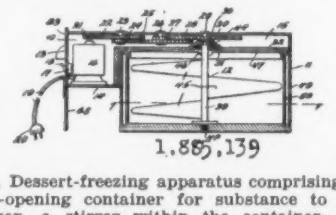
14. That improvement in the art of refrigeration by the aid of an absorption system which consists in utilizing heat produced due to change of state of fluid in the system to boil a liquid out of contact with the fluid giving off the heat, conducting vapor of the boiled liquid into heat exchange relation with atmospheric air and thereby condensing the vapor, and conducting the condensate by gravity back into heat exchange relation with the fluid giving off heat.

1,885,017. REFRIGERATING SYSTEM. Bennet Carroll Shipman, San Mateo, Calif. Filed July 22, 1927. Serial No. 207,745. 7 Claims. (Cl. 62—115.)

1. In a refrigerating system including a compressor, condenser, evaporator, liquid refrigerant supply and gas suction lines, the said supply and suction lines connected in mutual heat exchange relationship and a refrigerant gas saturator in the gas suction line adjacent to the compressor.

ISSUED NOVEMBER 1, 1932

1,885,139. REFRIGERATING APPARATUS. Clarence H. Porter, Washington, D. C. Filed Jan. 30, 1929. Serial No. 336,250. 4 Claims. (Cl. 62—114.)



1,885,139

1. Dessert-freezing apparatus comprising a top-opening container for substance to be frozen, a stirrer within the container, an electrical motor for causing relative movement of the stirrer and container, means fastening the motor to the container so that the motor and container may be handled as a unit, said motor being disposed at one side of the container not directly above or below the container, whereby the container is suitable to be inserted within the ice making compartment of a household refrigerator with the top of the container uppermost.

1,885,264. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed June 30, 1930. Serial No. 465,021. 3 Claims. (Cl. 62—115.)

1. Refrigerating apparatus comprising in combination, a closed refrigerant circulating system including an evaporator and a water cooled condenser, said condenser having a water flow circuit associated therewith, a pan disposed below the evaporator for receiving moisture collected upon said evaporator, and means connected with the water flow circuit of said condenser and to said pan and having a portion thereof extending a substantial distance above said pan, said means being rendered effective for removing water from said pan by the flow of water through said water circuit of said condenser.

1,885,353. APPARATUS FOR COOLING. George E. Hulse and John D. Strobell, New Haven, Conn., assignors to Safety Car Heating & Lighting Co., a Corporation of New Jersey. Filed Oct. 5, 1922, Serial No. 592,483. Renewed Jan. 10, 1931. 30 Claims. (Cl. 62—117.)

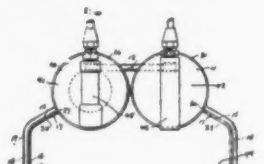
1. In apparatus of the general nature of that herein described, in combination, a conduit adapted to have passed therethrough a cooled refrigerating fluid for abstracting heat from the medium surrounding said conduit, a storage reservoir in connection with said conduit and positioned at a higher level than that of said conduit for supplying cooled fluid thereto, a second reservoir in connection with said conduit and adapted to receive the fluid therefrom, means for returning fluid from said second reservoir to said first reservoir, means for cooling said fluid returned to said first reservoir, and a source of energy inherently intermittently operative for operating both said returning means and said fluid-cooling means, said first reservoir having a capacity sufficiently great for storing fluid cooled to a lower degree by said cooling means during periods of inherent operativeness of said source of energy and adapted thereby to supply said conduit with cooled fluid during periods when said source of energy is inoperative.

1,885,608. CONTROL DEVICE FOR MECHANICAL REFRIGERATION MACHINES. Lester U. Larkin, Atlanta, Ga., assignor to Larkin-Warren Refrigerating Corp., Atlanta, Ga. Filed July 3, 1929. Serial No. 375,869. 7 Claims. (Cl. 62—2.)

1. In a boiler of a refrigerating machine having a liquid inlet conduit and float-controlled valve in said conduit, an oil suction opening into the boiler, a valve in said oil suction conduit and means connecting said last mentioned valve with the float controlled valve whereby said valves will be operated in unison or predetermined sequence as desired.

1,885,624. REFRIGERATOR CAR ICE BUNKER. Raymond C. Pierce, Chicago, Ill., assignor to General American Tank Car Corp., Chicago, Ill., a Corporation of West Virginia. Filed Aug. 15, 1931. Serial No. 557,393. 10 Claims. (Cl. 62—19.)

1,885,671. EVAPORATING UNIT. Eugene L. Barnes, Buffalo, N. Y. Filed March 28, 1931. Serial No. 525,945. 4 Claims. (Cl. 62—126.)



1,885,671

3. An evaporating unit for refrigerating apparatus, comprising a pair of adjacent, refrigerant chambers arranged in a substantially horizontal plane, and an ice tray compartment arranged beneath the chambers, the bodies of the chambers and ice tray compartment being formed of a single piece of material formed with refrigerant passageways.

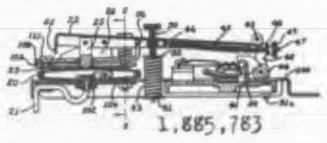
1,885,712. INSULATING COLLAR FOR ICE CREAM CABINETS. William Greenberg, Philadelphia, Pa., assignor to Fischman & Sons, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Nov. 26, 1929. Serial No. 409,922. 5 Claims. (Cl. 220—14.)

1. As an article of manufacture an elongated insulation collar for use in defining an access opening to the compartment of a soda fountain or cooler cabinet, of bandlike insulation material having an elongated opening therethrough, the collar being flared divergently downwardly to increase the size of the opening from the top of the collar towards the bottom thereof.

1,885,769. USING AND STORING DRY-ICE. Peter Schlumbohm, Berlin, Germany, assignor to The American Thermos Bottle Co., Norwich, Conn., a Corporation of Ohio. Filed Nov. 12, 1930, Serial No. 495,246, and in Germany Nov. 16, 1929. 10 Claims. (Cl. 62—91.5.)

1. The method of substantially preventing the evaporation of dry ice which comprises storing it under pressure to raise its normal temperature while continuously subjecting the stored dry ice to an outside temperature at least as low as said normal temperature.

1,885,783. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 30, 1928. Serial No. 281, 600. 3 Claims. (Cl. 200—83.)



1,885,783

1. The combination, in controlling apparatus, of a member adapted to be moved from one position to another, a pressure responsive device connected to said member, a pivot for said member, and means for moving said pivot only during abnormal movement of said pressure responsive device.

1,885,791. FLUID CONDITIONING METHOD AND APPARATUS. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Co., Hyde Park, Mass. Filed Feb. 6, 1931. Serial No. 513,809. 6 Claims. (Cl. 236—44.)

1. Apparatus for controlling the amount of vapor in a fluid contained within an enclosure, comprising a vapor source, control means for controlling the addition of vapor from said source, a medium contained within said enclosure having one side exposed to a different temperature from that within said enclosure, means for directing a light beam upon the surface of said medium, means actuated by light variations from said medium caused by any condensation thereon for actuating said control means, and means for decreasing the intensity of the light beam reaching said second mentioned means when there is no condensation of vapor on the surface of said medium, and for increasing the intensity of the light beam reaching said second mentioned means when said control means have been actuated by the condensation of moisture on the surface of said medium.

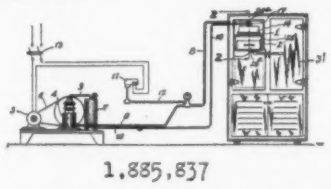
1,885,793. REFRIGERATION MOTOR AND PUMP. Arnold B. Bailey, Lynn, Mass. Filed June 25, 1927. Serial No. 201,417. 3 Claims. (Cl. 230—49.)

1. In a pumping apparatus for a refrigerating machine, the combination of a casing, a flexible pump in the casing, an expansible fluid surrounding the pump in the casing, an electrical heating coil in the expansible fluid for operating the pump in one direction, corrugated walls in the pump and a spring for operating the said pump in the opposite direction, and means for controlling the heating coil.

1,885,836. REFRIGERATING APPARATUS AND METHOD OF LUBRICATING SAME. Herbert C. Kellogg and Edward M. May, Detroit, Mich., assignors to Glen P. Cowan, Detroit, Mich.; Grace A. Cowan, executrix of said Glen P. Cowan, deceased. Filed July 25, 1928. Serial No. 295,174. 23 Claims. (Cl. 62—115.)

1. In the process of refrigeration in which a liquid refrigerant in a closed system is evaporated from a body thereof maintained in one chamber of the system, the gaseous refrigerant withdrawn into another chamber of the system and condensed therein, and then returned in liquid form into the first chamber at a reduced pressure, the method of lubricating the working parts of the apparatus which comprises introducing into the closed system a liquid lubricant soluble in the liquid refrigerant whereby lubricant escaping from the pump into the condensing chamber dissolves in the liquid refrigerant therein and passes with said liquid refrigerant into the evaporating chamber; effecting separation from the liquid refrigerant in the evaporator of lubricant lifted above the normal level of the body of liquid in the evaporator by ebullition thereof, and conducting the thus separated lubricant out of the evaporating chamber back to the pump to lubricate the latter.

1,885,837. REFRIGERATING APPARATUS AND MEANS FOR LUBRICATING SAME. Herbert C. Kellogg and Edward M. May, Detroit, Mich., assignors to Glen P. Cowan, Detroit, Mich.; Grace A. Cowan, executrix of said Glen P. Cowan, deceased. Filed March 30, 1929. Serial No. 351,372. 8 Claims. (Cl. 62—115.)



1,885,837

1. In refrigerating apparatus, the combination of an evaporator of the flooded type; a compressor having its inlet connected to the evaporator to withdraw refrigerant gas therefrom; a condenser connected to receive compressed refrigerant from the compressor and deliver the liquefied refrigerant to the evaporator; a body of refrigerant in the closed system; liquid lubricant in the closed system of lower specific gravity than the liquid refrigerant and soluble to a limited extent in the latter; means for intermittently driving the compressor; a receptacle secured in fixed position in the evaporator and having an inlet for lubricant and refrigerant gas of relatively long horizontal perimeter; a discharge duct leading from the said receptacle to the suction conduit of the compressor; and means associated with the evaporator for controlling admission thereto of the liquid refrigerant and maintaining in the evaporator a normal liquid level at a distance below the said inlet of the receptacle such that the intermittent rise of said lever when the compressor is intermitently started causes discharge into the receptacle of liquid lubricant from the top of the body of liquid in the evaporator without such discharge of liquid refrigerant.

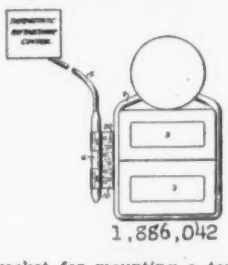
1,885,838. EVAPORATOR FOR REFRIGERATING APPARATUS. Herbert C. Kellogg and Edward M. May, Detroit, Mich., assignors to Glen P. Cowan, Detroit, Mich.; Grace A. Cowan, executrix of said Glen P. Cowan, deceased. Filed April 5, 1929. Serial No. 352,673. 14 Claims. (Cl. 62—126.)

1. In an evaporator for refrigerating apparatus, the combination of a casing structure having an upright wall with an inlet passage for liquid refrigerant and an outlet passage for gaseous refrigerant and oil; a valve for controlling the said inlet passage; an open topped cup-shaped float in the casing for actuating said valve; and a discharge conduit for gas and oil connected to the aforesaid outlet passage and having its inlet within the cavity of the float.

1,886,034. ODORANT FOR REFRIGERATION. Alexander Douglas Macallum, Niagara Falls, N. Y., assignor to The Roessler & Hasslacher Chemical Co., New York, N. Y., a Corporation of Delaware. Filed Sept. 4, 1931. Serial No. 561,309. 7 Claims. (Cl. 252—5.)

1. A composition of matter comprising a relatively inodorous refrigerant containing a lachrymatory alkyl bromacetate in amounts suitable for warning purposes.

1,886,042. REFRIGERATOR. Fred H Osborne, Chicago, Ill., assignor, by mesne assignments, to Grigsby-Grunow Co., a Corporation of Illinois. Filed Oct. 13, 1930. Serial No. 488,390. 4 Claims. (Cl. 62—2.)



1,886,042

1. A bracket for mounting a temperature control member to the cooling unit of a refrigerator comprising a mounting portion for mounting said bracket on said cooling unit, a clamping portion for fixedly retaining said heat control member and a heat conducting portion joining said two portions, said heat conducting portion having removable means for readily varying the amount of metal joining said two portions and thereby varying the heat transfer therebetween.

1,886,192. HUMIDIFYING RADIATOR. Andrew U. Jones, Montreal, Quebec, Canada. Filed March 25, 1932. Serial No. 601,179. 9 Claims. (Cl. 257—180.)

6. A humidifying radiator installation comprising a plurality of vertically spaced radiator sections, each having a top water evaporating surface, a fan positioned in front of the central portions of the radiator for blowing air toward and between said sections, and deflectors between the sections for diverting the air passing between towards the ends of the evaporating surface.

1,886,225. REFRIGERATOR CAR. Damian L. Reynolds, Hillsborough, Calif., assignor of one-half to Luther L. Yates, San Francisco, Calif. Filed May 13, 1929. Serial No. 362,674. 3 Claims. (Cl. 62—19.)

1. In a refrigerator car, means forming an ice bunker therein, means forming a storage space beneath the car, a pan having turned in edges in the bottom of the bunker, and means for draining the pan into the storage space.

1,886,243. ABSORPTION REFRIGERATION APPARATUS. David L. Gordon, Pittsburgh, Pa. Filed Oct. 22, 1927. Serial No. 227,919. 13 Claims. (Cl. 62—5.)

1. In a refrigeration apparatus of the absorption type, including a generator for supplying a refrigerant under pressure, an absorber adapted to receive a medium capable of absorbing said refrigerant, a tank located above said generator adapted to contain a liquid rich in the refrigerant, a tank located below said generator and adapted to receive from said generator an absorptive liquid from which the refrigerant has been largely expelled, and means operated by the pressure of said refrigerant for forcing the absorptive liquid from said tank receiving liquid from the generator, into said absorber.

1,886,331. REFRIGERATING APPARATUS. Mortimer W. Fish, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 30, 1928. Serial No. 281,603. 1 Claim. (Cl. 200—83.)

In a control device, an electrical contact

(Continued on Page 7, Column 1)

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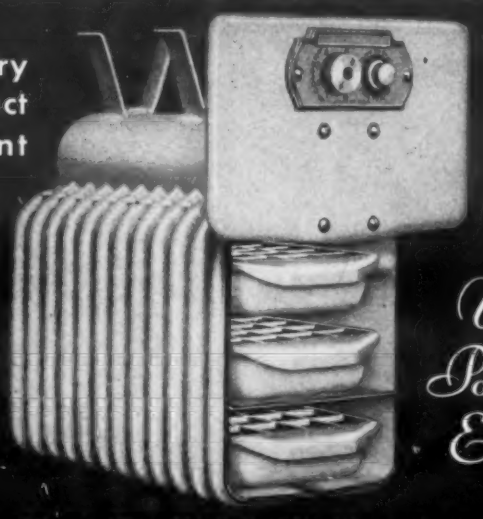

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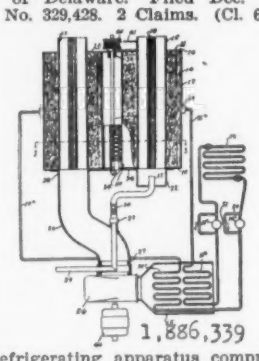
IN FIELD OF ELECTRIC REFRIGERATION

(Continued from Page 6, Column 5)

device for making and breaking an electrical circuit, a toggle member for actuating said contact device, a snap acting device connected to actuate said toggle member, said toggle member including two arms in substantial alignment when the device is closed.

1,886,339. REFRIGERATING APPARATUS. Charles F. Kettering, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Dec. 31, 1928. Serial No. 329,428. 2 Claims. (Cl. 62—5.)



1,886,339

1. Refrigerating apparatus comprising in combination a pair of generator-absorbers to be operated alternately, a flue for circulating air, said flue having a movable portion, a heater carried by said portion and spaced therefrom, and means for moving said portion to bring the heater in heat exchange relation with either generator-absorber and to circulate air in heat exchange relation with the other generator-absorber.

ISSUED NOVEMBER 8, 1932

1,886,424. WATER COOLER. William S. Ramsay, Toledo, Ohio, assignor to The Allen Filter Co., Toledo, Ohio. Filed May 20, 1930. Serial No. 454,074. 2 Claims. (Cl. 62—147.)

1. A water cooler comprising a cooler box open at its top, a removable cover member for closing said opening, said cover member having an elongated depression therein of substantial length and depth, an angle flow member formed in said well adjacent one end thereof, a water delivery and cooling pipe in said box connected to a source of water supply, a fitting in said box in alinement with said pipe and carried by said cover for connecting the water cooling and delivery pipe with said angle flow member, and means in said fitting for starting and stopping flow of water from the water cooling medium to the angle flow member.

1,886,468. APPARATUS FOR COOLING AND CARBONATING POTABLE LIQUIDS. Harry S. Cornish, New York, N. Y. Filed March 21, 1928. Serial No. 263,226. 21 Claims. (Cl. 261—11.)

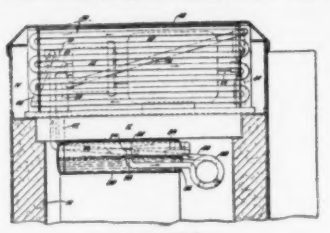
4. In an apparatus for cooling and charging liquids with CO_2 gas, the combination of a liquid cooling chamber containing CO_2 ice, a carbonator, a gas compression pump connected therewith, means for conveying the cooled liquid to the carbonator and means for conveying the CO_2 gas liberated in the cooling of the liquid to the compression pump.

1,886,553. REFRIGERATING APPARATUS. Arthur J. Kercher, Berkeley, Calif. Filed Feb. 17, 1930. Serial No. 429,037. 4 Claims. (Cl. 257—36.)

1. In a refrigerator, a condenser comprising a hollow metal member, a tube adapted to conduct refrigerant to be condensed and coiled within said member, said tube being in good heat conducting contact with said member and cooling fins disposed on the outer surface of said member and in good heat conducting contact with the same.

1,886,601. REFRIGERATOR. Russell T. Smith, Greenville, Mich., assignor to Gibson Refrigerator Co., Greenville, Mich., a Corporation of Michigan. Filed June 26, 1931. Serial No. 547,160. 1 Claim. (Cl. 62—115.)

In a refrigerator having a mounting board with a motor, compressor and condenser above and secured to said board, and an evaporator below and secured to said board, conduits connecting the compressor and condenser, the condenser and evaporator, and the evaporator and compressor, the conduit from the evaporator to the compressor having a vertically upstanding vapor receiving open part in the evaporator provided with an aperture in its side at substantially the normal liquid level therein, said conduit also being provided with a depending loop portion extending well below said level.



1,886,601

1,886,607. REFRIGERATING SYSTEM. Harry R. Van Deventer, New York, N. Y., assignor, by mesne assignments, to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed March 14, 1927. Serial No. 175,245. 8 Claims. (Cl. 62—4.)

1. In an automatic refrigerating apparatus, in combination, a motor, a thermostat for controlling said motor, a compressor, auxiliary cooling means for said motor and compressor comprising a motor driven fan, a tubular casing husing said motor, compressor and auxiliary cooling means, and a second thermostat for controlling said auxiliary cooling means.

1,886,656. REFRIGERATING APPARATUS. Le Roy A. Droescher, Willow Grove, Pa., assignor to C. H. Wheeler Mfg. Co., Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 27, 1931. Serial No. 518,679. 13 Claims. (Cl. 62—160.)

1. A receptacle for material to be refrigerated comprising a cam, a casing surrounding and spaced therefrom, and fins disposed within the space between said can and casing defining multiply connected passages for the cooling medium, said casing extending below the bottom of said can to form a wall of a compartment for cooling medium communicating with said passages.

1,886,777. AIR CONDITIONING APPARATUS. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Co., Boston, Mass., a Company. Filed Feb. 14, 1930. Serial No. 428,313. 7 Claims. (Cl. 261—115.)

1. Air conditioning apparatus comprising, in combination, a conditioning chamber having a water tube and an air nozzle cooperable to cause water from said tube to be projected in said chamber in an atomized state by air delivered from said nozzle, and a water supply apparatus for said tube having a head of water adjustable for making the discharge from said tube, either dependent or independent of air delivered from said nozzzle.

1,886,953. MEANS FOR AUTOMATICALLY DEFROSTING REFRIGERATING UNITS. Charles T. Hoffman, Washington, D. C., assignor of one-half to Emory L. Groff, Washington, D. C. Filed Sept. 21, 1929. Serial No. 394,209. 29 Claims. (Cl. 62—4.)

1. In an apparatus for automatically defrosting refrigerating units the combination with a switch, for automatically opening and closing the circuit to the refrigerator motor, an ice following and contacting member, a thermostatically operated circuit closer carried by said ice contacting and following member and having low and high temperature contacts, and a thermostat operating at a temperature above or below the set temperature of said low contact and included in an electrical circuit with said low temperature contact, whereby at unusual low temperatures the circuit to the low temperature contact will be automatically opened.

1,887,125. HYDRATOR. Russell J. Green, Enid, Okla. Filed July 14, 1931. Serial No. 550,799. 5 Claims. (Cl. 62—103.)

1. In an electric refrigerator, a casing disposed beneath the unit of the refrigerator, a vegetable tray in said casing, a defrosting water tank in said casing, there being a slot in the bottom of said casing, said tank being of less length than the casing, a drain faucet carried by said tank and registering with said slot, a tray forming a closure for the top of the casing, and a drain pipe carried by the tray projecting into said tank and anchoring the tank against displacement from the casing.

1,887,127. REFRIGERATING APPARATUS. Bicknell Hall, Gloucester, Mass., assignor to Frosted Foods Co., Inc., Dover, Del., a Corporation of Delaware. Filed Nov. 6, 1929. Serial No. 405,249. 37 Claims. (Cl 62—114.)

1. Refrigerating apparatus comprising heat-conductive members relatively movable to engage between them a product to be chilled and then movable with the product to carry the same through an endless path, whereby the product may be delivered to and removed from the heat-conductive members in substantially the same location.

1,887,210. REFRIGERATOR DOORLOCK. Joseph Miller, Minneapolis, Minn. Filed April 15, 1931. Serial No. 530,305. 4 Claims. (Cl. 292—241.)

1. A refrigerator door lock comprising, a rock shaft provided at one end with a crank pin, a support including spaced-apart bearings, adapted to receive said shaft, an operating handle secured to the rock shaft, a keeper comprising an outwardly projecting web having an aperture therein adapted to receive a locking member, and an offset cam on said web adapted to be engaged by said crank pin whereby the door may be forced onto its seat by manipulation of said handle, said cam also functioning to retain the crank in door-locking position.

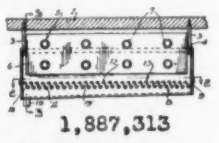
1,887,224. ELECTRIC ICE CREAM DELIVERY TRUCK. Charles A. Ward, New Rochelle, and Oscar E. H. Froelich, Queens Village, N. Y., assignors to Ward Motor Vehicle Co., Mount Vernon, N. Y., a Corporation of New York. Filed July 2, 1928. Serial No. 289,945. 10 Claims. (Cl 62—117.)

1. In a vehicle, the combination of an electric motor for driving the vehicle, a mechanical refrigerator, an electric motor for operating the refrigerator, a source of electric current, and electrical connections for supplying current to said motors from said source comprising conductors for supplying current to said refrigerator motor when said source of current is out of operation.

1,887,243. REFRIGERATOR. Charles A. Moore, Edina, Minn. Filed March 19, 1930. Serial No. 437,011. 2 Claims. (Cl. 62—101.)

1. In a refrigerator, a cabinet providing a chamber for provisions and having a door lending access to the chamber, a tank containing a refrigerating liquid superimposing the cabinet, a coil in the tank for a circulating refrigerating medium, means superimposing the tank for supplying such medium to the coil, said coil being arranged to provide a clear vertical space between it and a side wall of said tank, a refrigerating element in the provision chamber comprising a conduit for the circulation and a return terminal extending along the bottom of the tank and communicating from end to end thereof with the interior of the tank, the feed terminal being disposed beneath the coil and the return terminal disposed in said vertical space adjacent said side wall of the tank, the conduit of the refrigerating element communicating with the feed terminal and with the return terminal.

1,887,313. REFRIGERATED SHOW CASE. Lester U. Larkin, Atlanta, Ga. Filed Feb. 26, 1931. Serial No. 518,535. 3 Claims. (Cl. 62—103.)



1,887,313

1. In a refrigerated showcase, a refrigerating coil in the refrigerating chamber of said showcase in combination with a drip pan beneath said coil, said drip pan comprising spaced parallel members defining substantially vertical passages, the lower edge of each member being formed as a trough, and the upper edge of each member being inclined downwardly to a point intersecting a vertical plane passing through the trough of said adjacent member whereby condensate dripping upon the inclined upper edges of said members is shed into the troughs at the bottom edges of said members.

1,887,402. CONTAINER FOR USE WITH REFRIGERATORS AND DISPLAY COUNTERS. Charles Domm, Detroit, Mich., assignor of one-fourth to Louis J. Gilchrist, Detroit, Mich. Filed Nov. 15, 1930. Serial No. 495,979. 1 Claim. (Cl. 62—1.)

A container of the character described comprising a casing having a forwardly inclined upper front portion with an opening therein, a lid removably fitted in the opening and having a row of spaced substantially elongated apertures, guide eyes mounted externally on the lid in spaced alignment with each other at one side of the apertures, a bar slidably and swingingly fitted in the eyes and having right angular spaced extensions, and bumpers on the extensions and engageable over and from the apertures on manual manipulation of the bar for the closing and opening of said apertures.

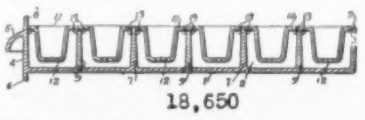
1,887,419. REFRIGERATOR. Benjamin Augustus Michel, New Orleans, La. Filed Oct. 12, 1931. Serial No. 568,478. 4 Claims. (Cl. 62—51.)

1,887,463. REFRIGERATOR OF COLD BRINE SHOWER SYSTEM. Zenpei Ogura, Tobata-Shi, Fukuoka-Ken, Japan. Filed Aug. 14, 1931. Serial No. 557,184, and in Japan Aug. 29, 1930. 2 Claims. (Cl. 62—104.)

1. A refrigerator of cold brine shower type comprising a refrigerating chamber having an inlet at the top and an outlet at the bottom of cold brine, superposed partition trays arranged horizontally in the refrigerating chamber and provided with a number of small perforations for allowing cold brine shower and openings for delivering superfluous cold brine from one partition tray to the next lower partition tray and preventing the cold brine flowing downwards from an upper partition tray on the next lower partition tray from directly passing into the overflow openings of the last mentioned partition tray the greater part of the cold brine coming down from an upper partition tray being received in the next lower partition tray.

REISSUE

18,650. TRAY FOR REFRIGERATING UNITS. Frederick C. Geiler, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Original No. 1,780,422, dated Nov. 4, 1930, Serial No. 111,874, filed May 26, 1926. Application for reissue filed July 29, 1932. Serial No. 626,164. 14 Claims. (Cl. 62—108.5.)



18,650

8. In combination, a tray member adapted to be placed in thermal contact with a cooling unit of a refrigerating system and adapted to contain a substance to be congealed or frozen, a grid member including intersecting walls of thermal conducting material for dividing the interior of the tray member into a plurality of compartments, said grid member being removable from said tray member, and thermal conducting means in detachable interlocking engagement with one of said members and extending into said compartments for altering the configuration of the interior of the compartments.

ISSUED NOVEMBER 15, 1932

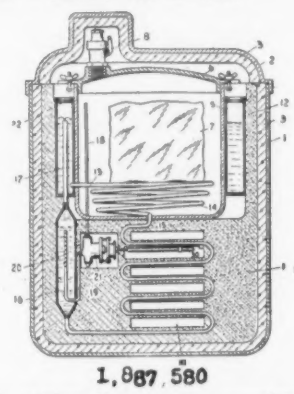
1,887,558. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Oct. 31, 1928. Serial No. 316,273. 3 Claims. (Cl. 62—95.)

1. A refrigerating apparatus comprising a closed tank for liquid to be cooled, said tank having an opening, a plate for closing said opening, refrigerant evaporating means removable from said tank through said opening, said evaporating means comprising a refrigerant header on one side of said plate and ducts on the other side of said plate extending into said tank and connected to said header.

1,887,563. REFRIGERATING APPARATUS. Duane R. Neal, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Feb. 28, 1929. Serial No. 343,498. 6 Claims. (Cl. 62—115.)

1. In refrigerating apparatus, a compressor, a fan spaced from said compressor, a substantially U-shaped condenser having the base of the U located between said fan and said compressor.

1,887,580. METHOD AND APPARATUS FOR REFRIGERATION. Lloyd G. Copeman, Flint, Mich., assignor to Copeman Laboratories Co., Flint, Mich., a Corporation of Michigan. Filed April 1, 1931. Serial No. 526,848. 9 Claims. (Cl. 62—91.5.)



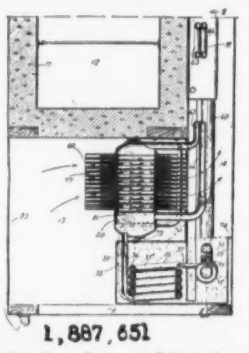
1,887,580

1. A refrigerating system comprising, a container for solid CO_2, means providing a cyclic path for refrigerant, means utilizing gas power derived from the evaporating CO_2 for circulating the refrigerant in its path, and thermostatically controlled means for governing the flow of refrigerant in its path.

1,887,582. AIR CONDITIONING METHOD AND APPARATUS FOR PASSENGER CARS. Jesse H. Davis, Baltimore, Md., assignor to B. F. Sturtevant Co., Hyde Park, Boston, Mass., a Corporation of Massachusetts. Filed Oct. 19, 1929. Serial No. 400,930. 26 Claims. (Cl. 62—117.)

1. The method of conditioning air for a passenger car train which consists in chilling a cooling fluid in a master car and conducting said fluid by means of conduits from the master car to the passenger cars in the train, shunting the fluid from said conduits to a cooler in each passenger car in the train, and drawing the air to be cooled over said cooler and discharging said cooled air into the car.

1,887,651. ABSORBER FOR AIR COOLED REFRIGERATORS. Alvar Lenning, New York, N. Y., assignor to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Original application filed Nov. 15, 1927, Serial No. 233,366, Patent No. 1,836,719, dated Dec. 15, 1931. Divided and this application filed Jan. 26, 1929. Serial No. 335,222. 14 Claims. (Cl. 257—245.)



1,887,651

1. An absorber for a refrigerator adapted to be cooled by air comprising a shell, means for introducing vaporous refrigerant and liquid absorption fluid into said shell, a series of discs in said shell in contact with the inner surface of said shell arranged in parallel to form a series of parallel air passages past the absorber and means for closing two sides of said passages.

1,887,737. AIR FILTER FOR HEATING AND VENTILATING UNITS. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corp., Moline, Ill., a Corporation of Illinois. Filed April 16, 1925. Serial No. 23,523. 5 Claims. (Cl. 257—137.)

(Continued in Next Issue)

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for

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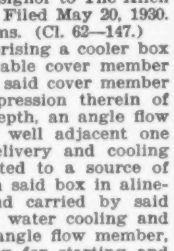

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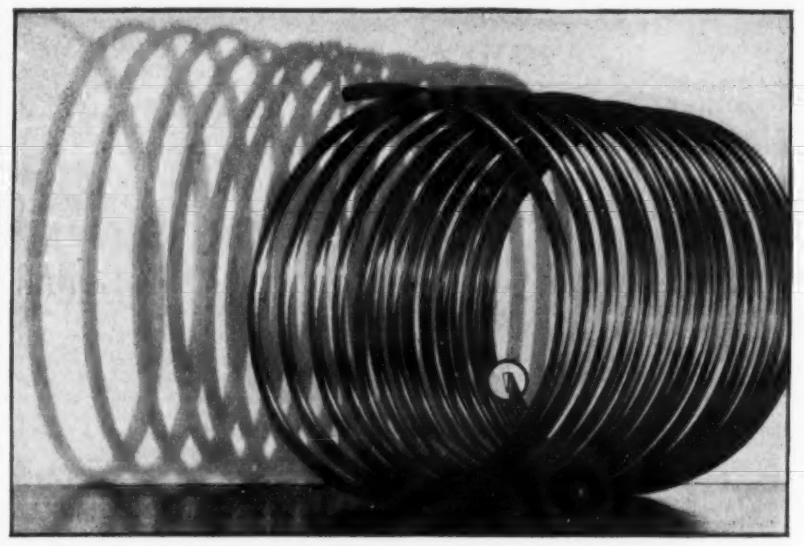

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Stock sizes are 1/4 in., 3/8 in., 7/16 in., 1/2 in., 5/8 in., and 3/4 in., all in .035 in. gauge. Heavier gauges can be made to order. Stock coils are 25, 50 and 100 feet long. Longer lengths can be supplied at short notice.

French Deluxe Copper Refrigeration Tubes are free from oxide and foreign matter. Each coil is *completely* dehydrated sealed, rigidly tested and reaches you ready for use. For manufacturers who prefer to do their own dehydrating, the French Manufacturing Company produces copper tubes dried (commercially dehydrated), with either open or closed ends.

All French Copper Refrigeration Tubes possess the requisite properties for lasting, dependable service. Their grain structure is uniform. This important quality is in every coil because highest metallurgical skill, long manufacturing experience and only the best of raw material go into their production. Additional information will be furnished upon request.

THE FRENCH MANUFACTURING CO.

General Offices: Waterbury, Connecticut

FRENCH REFRIGERATION TUBES